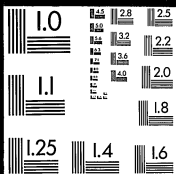


1 2 3 4 5 6 7 8 9 10 11 12
CENTIMETERS



10:1

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Thomas A Edison Papers

A SELECTIVE MICROFILM EDITION
PART V
(1911-1919)

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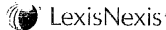
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Thomas A. Edison Papers
at
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18 June 1981

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START

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A Note on the Sources

**The pages which have been
filmed are the best copies
available. Every technical
effort possible has been
made to ensure legibility.**

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**NOTEBOOK SERIES
POCKET NOTEBOOKS**

Notebook Series -- Pocket Notebooks
Notebook, PN-14-07-24

The dated entries in this pocket notebook cover the period July-December 1914. The book was used by Edison to record ideas about business matters, experiments to be tried, and other tasks to be performed. Some of the entries have been crossed out. Others appear to repeat entries from earlier books. Included are experimental notes on disc records and reproducers, kinoscopes, batteries and chemicals, miner's lamps, locomotive headlights, and automobile starters. The business-related entries include notes regarding the sale of Amberola machines, numbers of disc records ordered daily, market share in motion picture projectors, the cost of Edison battery use in automobiles, and the cost of regenerating battery cells. There are also notes on music and recording artists, including lists of Edison records and comments on the talent of singers recording for Victor Records. An undated entry made shortly after the outbreak of World War I in August indicates Edison's intention to "shut up London office, send British music here, [and] close it up tight." In addition, there is a list of religious, civic, and Masonic organizations, possibly prepared in connection with the tone test recitals that were conducted beginning in September.

Among the numerous Edison employees mentioned in the book are master machinist Robert A. Bachman; Harry T. Leeming, head of the Purchasing Dept.; Walter H. Miller, head of the Recording Dept.; machinist and longtime Edison associate Frederick P. Ott; and Harold H. Smith, chief of the Battery Research Dept. There are also several references to industrialist Henry Ford. The flyleaf is inscribed "Ent final Apl 28 1919." The pages are unnumbered. Approximately 100 pages have been used.

PN-14-07-24

E-1710

Ent. final

Apr 28 1919

2996

() 150000 / 150000

July 24 1914

Dead cost At Mich 16 - 7.14
Service 32

Total 7.46

With selling expenses 8.10
labors without interest rent advtg etc

Steam theoretically required for
84 presses, 22 hours daily
50 H.P. Boiler

Test glass funnels made by
Kaminelatic

Put extra piece on Plano hammer
like branding Nickel machine

Ferric Sulphate is the only known
Sulphate soluble in Alcohol

Dilution always tend to make B. w. i. d.
Salts -

des

63

Anderson Coupa
 Oropho (P. Park) 1914
 2. Phoenix 4000 217
 3. Solihy 217 160

Silver Finca 1915
 1. Courser 1000
 2. 850 90
 3. 850 90
 4. 850 90
 5. 850 90
 6. 850 90
 7. 850 90
 8. 850 90
 9. 850 90
 10. 850 90

Chassis	Motor	Wt in lbs	Wt in lbs	Wt in lbs	Wt in lbs
80	92	182	47.3	50	50
73	91.5	182	47.3	50	50
60	91.5	18	47.3	50.5	50.5
50	98	17.6	66.3	52	52
45	100.5	17.4	66.3	53	53
40	103	16.9	65.5	53.2	53.2

We sell about 17.3 lb of Positive
 for each foot of Negative

Miller estimates cost of making &
 making 2 1/2 lbs of Ni into new
 at 28 cents per A4 Cell

Look up my old Caswell
 books for Victor references

Sulphur acts on amine acid
 to give raising make some.

Patent new metallic battery Case.

Babson buys 10% of output
 Amherst, N.H.

Ford changed to Electric Before
 Change Weight 1955 - after
 Change 2275 lbs

52A4	750	Made 53 Miles
Chassis	1275	Mechy around
Motor & gear	250	Totals
	<u>2275</u>	

Schedule of Disc Mfg up to
April 1, 1915

=250	9828
200	8222
150	<u>11428</u>
	29478

Make some high Carbon
steel plates for Varnish - Timmed
also

NH_4F forms a double salt with
 Al_2O_3 try it in a rectifying sol
if it kills rectification it will
remove Al_2O_3 from old Cells -

Al_2O_3 Soluble in Caustic Barium
hydroxide Use used in tests -
also its use in Ethylamine -

Must put out 10 Bonci Tunes yearly
as contract makes us take that
many - If he dont do them good
we can get out,

See if can get a Disc in a
movie - high class, an trial for 22
day the E Orange one,

Following Potassium salts
insoluble or little sol in water

Perbromate
Perchlorate
Pertungstate
Phosphite.
Phthalimide
Piperate
Pyrosulphite
Silicofluoride
Ureite.

Following Lithia salts Insol

Borate
Fluoride
Phosphate.

Run Tests -

find out what blackens Copper
disc moulds.

~~Use English Celluloid man~~

~~Look up parts old 4 yr + those
used today.~~

Amberol machines
Best Sellers

Amberola X	30.00	} use Disc Cabinets
Next 6	60.00	
" 5	80.00	
" 8	45.00	
Very poor { 3	125.00	
1	200.00	

Try color pigments in req
Disc Varnish, inorganic -

Projecting Machines

		Jobs	Dhr
Simplex			
Hand	\$ 300	20%+	20+5
Motor	355	15	
Powers	260	20+15	20+5
Edison	250	40%	25+10

WR have 374 Plating baths
outside of Demidiche preparatory
on basis of 2 per week gives 125 daily

Abol (Frichl) in Vermont delays
final hand down, gets very
satisfactory + Temp. like California

of Ferric Chloride in Vermont acts
like Sesame, comes off plate easy

Smith = Put up 4 seq irons
Run 1 run take out one iron -
run again take out another
3 runs take out another finally
another run & put all soak
in water & deliver them to me
in the water solution - Small
cells will do.

Pick out 3 each of tunes
sung by Basso, Damiano,
Jeno, Calphano, Mergo,
Contra Alt. & Caloradina
Also cello & Violin for standard

Have two machines rigged
up like Ernie uses. I will
mark defects & then Miller
Cronk to his assignment
Can come & hear them -

SbO₂ insol in NaOH, but sol
in KOH. Try SbO₂ as Fe in
NaOH with NaOH, also Copper
Na metantimonate is the only
insoluble salt of Sodium

Amidobenzol - strongly
alkaline dec if sol becomes
see if conducts

When 2 molecules of Boron
Trioxide + 3 molecules of
Lead Oxide are fused together
product soft yellow glass
which softens in hot oil
good for Disc submasters

Pb Cy is insol in Key Try bathy
Lead plates in RC₁

Cupric Oxichloride is insol
in KOH. possibly same in
NaOH. try as substitute for
CuO in Lelande.

Try Copper acetylides in Lelande

Manganate of Barium in
place of CuO in Lelande

Antimony precip by Zn gives
black powder of metallic Sb
it is used to give steel to
Plaster Paris articles -
Duroidite try Celluloid, mastic

What is done with old
Wax Masters

General Inspector for all
plants - Report to library

Smith = What has been
done with the A4 cells made
up entirely of split tubes -
put on long endurance -

Smith = Put up 2 A4 as now
made on long endurance

Hutchinson says wants
a quicker neg than Eastman
& remember Lumiere had one
3 times quicker with just as
fine a grain. Write

Fred Ott
try Peacock film between
glass under hydraulic

Get list of all outside pay
roll of Beneficials Eld.
of all the Cos

When proper rigged up to
Run life test small cells
130 140 150 175
Fabr want quicker results

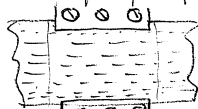
~~Get open 20 4 yr tubes~~
~~2 parts + test contacts~~
~~on machine~~ Suppl

~~Put the old 4 yr tubes dipped~~
~~in one cell also nich~~
~~on 10 Hatrun~~

Get Dr Grathes for book

~~Get off a press second max~~
~~under hydraulic~~

Bachman - Testing machine
test strength of strip



OT



Spreader

Cost of recovering 100 A⁴

	Labor	Materials
Milling off covers	1.25	
Soak & disassemble	3.15	
Taking Ni tubes from grids	.67	
Opening contacts	15.67	
Sawing ends of tubes	15.00	
Plating tubes		
12000 Ni tubes	39.17	20.82
Regenerating old Nickel		40.00
Pressing grids	.84	
Removing $\frac{1}{2}$ c pockets	.84	
12000 new $\frac{1}{2}$ c pockets	12.00	41.18
Regenerating $\frac{1}{2}$ c 25c		25.00
Reassembling Ni Plates	1.40	
" " $\frac{1}{2}$ "	2.50	
" " Cells	8.09	
30 New Covers	2.55	1.33
30 New Covers	1.39	1.20
10% Rubber parts		7.54
Removing dope from Can	1.50	
Doping & forming Cells		14.00
Electrolyte	106.00	16.50
Overhead on labor 15%	159.00	131.26
	311.26	
	9296.26	

Send the old 126 Fe from 4 yr old
cells treated 3% sulphuric to
62 ground 150 mm down to
Miller 600 cc 3%.

~~Also send a pound just
as it is without any 502
treatment.~~

Get paid roller ~~to pass~~
also unit ~~over~~ ~~through~~
Each week also ~~seeing~~
Repairmen

Try inorganic pigments
in Condensate Vacuum

Continuous film use Concentrated
beam from arc + use shutter
on the light.

~~Psychology tubes the
for all them of
getting better~~

~~What became of Melanophylaxini,
dramm Vignatelli -~~

~~Function: Several microorganisms
have lately been with cultures
of CuO. Natta's sludge, solid
Electrolyte - which is some
of our - 2~~

~~Test Red for with V. L. for
S. -~~

~~Have table put up for best
room -~~

~~Study out of how to fully
explain Ford Engine
operation & Drive -~~

~~Don't buy (I don't believe) camp~~

~~Get from (I don't believe) H. H. H. H. H.
H. H. H. -~~

~~I don't have no more of
the type of order -~~

Worth Land fossils to turn
100 pounds in 10 days
after delivery of wax
All water by ~~Wishes~~

Go to ~~San~~ Co see about
Iron loading -
also get a lot of packets

Recitals ~~Label~~ Parlor
Chachangpa

See about Cold tests on
Ferro's ~~Ammonium~~ Fe

Cold test on No 4 Oil
Cramped die.

More Anna Case records
get list also Margaret Keyes list

Reg 7/2 Oil No 4 also Reg die.
Change once long charge + discharge
Change again, then dip in Alcohol
+ water pump dry Alcohol out
+ see if self heat if not, Repress
Make 4 each kind -

Press 8 gram pellets the Ferro. N₂O₂ Sulf
7/2 containing 20% SnO₂ 2 of them

See Walker, Miller - Glavin
Shut up Louisa affidavit
Send British Mus. c
here - Close it up
until - I will look
at you for 30 permuting
7 2 20 5w

hunge says best for phenol
burns on hands is a fatty oil -
olive & ghee - ~~but~~ ~~not~~ ~~best~~ ~~is~~
5/11/2008, ~~the~~ ~~water~~ ~~the~~ ~~oil~~

Holm up - If you have a good
Rein. Make up a batch
of records with 2 seal
Hole in 5/10 6/10
We will make 2 bladders
from them -

4 grad both drill 40/1000 hole
End to End - part 2 covers view
in 4 then part in 2 holes &
Smooth pieces - see view
in Corbett - also 2 with
tubs - Endorse + 2 drums -

Old blank 710 000 lbs
of which 450 000 lbs out door
& must be stored -

New blank 497 000 lbs

Since about ED Dine when
types are mostly used for
dancing - (S. R. S. in)

One Carl Stewart = ~~an~~ mobile

Which both boys on ~~the~~ 1 side
Village grassop ~~Stewart~~ & ~~Pauler~~ & ~~Wain~~

Food Ott - Die ~~squid~~
Condensed ~~Vagante~~ -
or also not condensed but
stiff from drying -

Speak ~~Baron~~ ~~Edick~~ ~~Loss~~
of sheets of ~~wood~~ ~~paper~~ -
& ~~Bring up~~ ~~Disc~~ ~~sheet~~ ~~to~~
date & ~~keep up~~ -

Determine ~~field~~ on
MP ~~Cross~~ -

Keep up ~~Exam~~ on MP ~~Cross~~ &
Pence ~~Technical~~ ~~Summary~~
of 4 -

After MP ~~Cross~~ OK ~~reun~~
Cold ~~Coal~~ -

Correct ~~McC~~ ~~Chow~~
Description ~~Dise~~ -

Correct ~~McC~~ ~~Chow~~
Catalogue ~~CC~~ ~~all~~ -

Now ~~up~~ ~~list~~

Q
Am precipitating NiO₂
it is possible organic matter
in excess NiO₂ dissolves
NiO₂, & the 1/2 left drops
& leaves NiO₂ Colloid -
my

Try A 4 double number
of operations -
& twice the drops
of 2 1/2 flake 24 grams
possibly 25% NiO₂.

Smith - Hereafter
put all Electrolytic
from small lead
cells in a bottle &
send over

Tell Y.M.M. dissolved 1.03
his NiO₂, very dirty -

find out what water
B. Bailey Co. uses to
wash. Ni₂ S₂ S₂ of
filled - Very dirty
is from well water -

See how we have
paid Shown

~~Do pay Travellers exp~~

Why not calculate
weekly records and
hand to the 2000
dealer's of G.O. Cost,
or open 25 -
I will pay

See if Smith had the old
Bismuth ~~Co.~~

Look up records & find
1938 Short Tube run &
make 10 lbs Bi-

Ed Rice, stage things

Ted fix cap on
Sumpless ~~to~~ cant
Come off

Smith & head salt
on cloche get
average yielding

Small cost in battery comp.
Stavler in wheel

Aug 11th have 1750 lbs
Paraphenylenes di-amine on
hand, with $\frac{1}{2}$ of an
pound of base it will last
4 months especially if we
use 25% reformed ~~chloride~~
with Regene records, you need
last $7\frac{1}{2}$ months

Patent the Rubber or
powder blank & disk

Stop mixing X night
shift.

Give Smith Mr. Cook
5000 to 10000

Aug 12 1944

Cost 10 B4 Cells

Material	20.389	
Labor	6.162	
Overhead 183%	11.276	37.827

Cost one 10 cell box

Material	.917	
Labor	.295	
Overhead 183%	54	1.752

Cost 9 B4 Conrodion 2 lugs

Material	.307	
Labor	2.6	
Expenses	775	1.042

Booths assembling Depoxy forming	40.621	
remat. King factory cost	180	
	40.70	

Shipping

Nothing 50

Assembly 3,00

Assembly 1.20

Service 1.50

Other Expenses 1.25

48.15

No profit

~~Urdu W. paper London
Para. 1000000000
per day 1000000000
Carbon 2~~

~~Thrusty - 1000000000
to tunnel - 1000000000~~

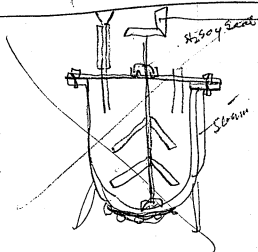
Get data for X-ray shift
only

Req. of pockets are 1.35 thick - 3/16
multi pks are 1.05 thick
1/4 inch pks of A length contain
8.25 grams 3/16 pks of A length
contain 6.1 grams
1/4 inch pks of B length contain
6.25 grams 3/16 inch pks of B
length contain 4.6 grams

Saturated Potash Crystals
 with Milk of Lime the
 Ca salt is Meta-Cresol which
 is much less sol than
 P salt separates out
~~is filtered~~ it filters
 and decanted with care
 & slowly pass Meta-Cresol
 through to get more wash
 Crystals of Meta-Cresol
 with formal to get rid of
 Meta-Cresol

Another man uses Bromine
 with -

Another person uses
 Mixed Crystals with
 Acid Sodium Sulphate to
 100-110°C at 10-15 lbs
 pressure ... water when
 P-Cresol separator out as
 oily layer the Meta-Cresol
 above being separated
 The Meta-Cresol is
 separated at
 180°C after P-Cresol is
 separated



Aug 19 -

88298 lbs
Cathodic on hand

Chamber Accd

7.25 @ 7.50 Ton of ab. ranges

Trunk Cars - 55 and lbs -

62.18% H_2SO_4 not less

Must unload Cars quickly
as read 4.5 hrs. min -

Put 2 A4 Cells Varny

15% $NaOH$ Reg

~~LiOH, Endurance~~

2 A4 - with tubes loaded
without the extra weight
on lamps - & also
latest tubes not stratched
in making - set up for
Endurance - at same
time make 4 short tubes
without extra lot -
also set up the gear
6 tubes long for 2nd
test to opt of capacity

~~Fichter & Slooper~~

~~Chem Bar 10/11 2003-2019~~

~~Electrolytic Phenol from
Benzene & Sulphuric acid -~~

~~34 lbs - Try~~

Try Oxidized ~~p-phenylenediamine~~
get some on crude
NaCl₂

Daily heat records
before repacking
say 110 -

Noville - then the
2 Tins for clay +
cleaning Cold Ice
water for also zero
also 130 heat,

Harry ~~Get to ... records~~

for Shipments Records from 1st
to Aug 26 5629 daily (C)
Each wkq day +

500 gal oil
gallon Tar

1/2 gal Tar per
M oil gas -

5 1/8 of Oil is
Benzol

~~Steaming~~ ~~Carbons~~

Precautions to get good
yield - Fickel & Co. affls.
Bull Soc Chem 42 p 66-69
+ American Chem J
6th 152 Transactions 1884-1885
Formation Oxidation
products prevented

Also (Chloro) etc. Vol 48
where 4 gal. Chloro form

Crude $C_6H_4(CH_3)OH$.

California. The probably
see also 3100 KWH per ton Carbons
Neelgava taken 5908 block furnace
" " 4090 Tapping

Tapping furnace 5908 KWH Ton.
300 KWH per ton
500 " Anthracite
gross 85% pure Carbons then
one ton gives 680 lbs. Acetylene gas
Equivalent to 90 gals Benzol
or 100 gals gas. The cost
Costing \$24.00 651 lbs Acetylene Ton
Carbons

Lange's Will.

Isobutane found in
furnace of the gas Rheingal
equipped at the steam
works of the Westphal
The land surrounding

Lucas

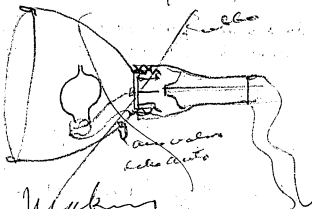
Mixed gas $\frac{2}{3}$ res. water $\frac{1}{3}$ Coal gas
5 cc gas 40 gms benzol per
Cuba Motor to all aim
16 CP gas

Treat Bay 60 cup &
Barrill with H₂SO₄
to get fatty bodies
out, also healing
with NaOH.

yua - a good amount
still to fraction
the crystals - 15 gals

also post heating
100 gals hex. consequence like
of water -

Aug 3 1914



Look up Cone No. 7 to
back - see about
25% Rotto + 15 @ 21 No. 11
develop rate & Rod

Benzaldehyde with few drops HCl.
Condenser placed to white Resin
try it in Cressol

try formaldehyde on Benzoin
with some HCl. also on Cho

Sol of 240 gm Na Chlorate
& 320 gram Na Chlorate
per Liter, at 20 @ 30 Centigrade
with Current density 20 @ 30
amps per square Dec m
gives yield of 40%
formaldehyde and 20%
Methyl alcohol.

Martha West DRP.
138442 / Chem Soc J
Lab. No. Val 84 1893

Passing Dry air or O₂
over Benzoin Resin
Chl aluminum produced
phenol & 22 compounds
Friedel & Crafts in Chem & Phys 14

Naphthalin heated
with traces of AlCl₃
gives trace of 4-benzidine
of Naphthalin

Meta Cressol fused with
Potash gives Oxybenzoic
acid-

Distilling OM or P with Na
Cressol gives Oxybenzoic acid

Chloroform Distilling Calcium
Salt of Fatty acids gives
same result as use of
Phos Carbide,
Searo etc try
Munich in Val 63

Try discarding most the
picture from film +
Recorder for slow recordings

Switch - just experimenting with
Electron Beam Lead Sails...

Seemingly there will be
dandruff,

Try 007 stack for tubes
+ thicker rings -

Walden + does new law
Stop us from pulling
Repper on Vic Walden
How about altering
our Contracts

Asks Walter Walker about
Remains to take charge getting
songs fund out about
nut

What does mean who
writes talk on back
successes de Gende
this

Rushmore long way to
Tupperary -

See Ott + has 3 B4 plates
Reg 414 made like
333-4-5-6 to compare

Also Dups made with
from with 20% tin
like 333-4-5-6 -

Frank Ott

Impurities in the Bengal cause
Melt to turn black →
also if there is not great
Excess of Caustic Soda
the temp will get too high

Digonal - In fine Chem

[2] Vol 17 294

Bengal can be cleaned of
extra particles by using
 H_2SO_4 - Cold -
90% Bengal has hydrocarbons
in —

Insoluble blackening -
 H_2SO_4 takes it out

Sell our Ortho Cresol
see how much on hand
+ Cost,

Monahan - What pressure,
do we put on Crimping die
want more pressure
B4 plates + Crimped some
pressure so small die
333-series, then flat die →
+ see that thickness is same as
a 7 gram packet.

Legal Dept.

Get all the parts of
Shoop for spraying
Water Metals on
articles -

Try Shoop process for
Coating Wax meters

Dry Dup 335-

But make 1st 5 Run
Chg discharge Heat, &
then Run normal.

Dup by making 1st
5 Runs Cold at
35° Fahr then run
Normal -

Dup by 1st 5 runs
at normal temp
but of 1000 rals
then go normal

~~Make note~~

~~Work up our Reps for
the machine & get ready
if Bill passes Congress
against Memorandum
enable a drive for the
dis/tract -~~

Dry sealing disc bags
& rough handling -
see if OK -

5 A4 72 area crumpled
655 sqr inch
24 all crumpled 225 sqr inch
Each plate Crumpled 13.1 inch
Each plate all over 45 inches

Get good pianist get up
to give showing how to
interpret on piano with
spoken descriptions -

Little Singing
Same thing

Running scales, perfect
& imperfect scales,
& all about interpretation

Booklet for recitals
The story of the Pharaoh
interlocking - No
Sign of Conservatism

Standard Recital
Cards,

Holy Name Society -
Christian Science
American Federation of
Catholic Societies
National Conference of
Catholic Christians

¹ Christian Endeavors
Orators Societies

² International Bible Societies
& Conferences -

Salvation Army
Volunteers of America
Society of Friends
Women's Christian Temperance Union
Christian Mission Alliance
Josephine Knepp Ass'n Newark

Press iron cokes dry in die
so hold together, then put in
grid & give great pressure to
Crump around Edges & form

Again 2 packets crumped at
Edges heavy pressure then
flat press then Cut both
faces of steel packet away
after forming to reduce
Restrictions & see if
if they want disappear

Planning We have now had
the designs for special machines
(6 months) which has no
produced -

Learning What for takes the 10 or
15 tons at 19000 lbs. pressure, with
all the delay to build Crucial

Daily arguments & clash foreman
so you can expect more
Try them in Variables +
Cost all our good records.
Reprinted as long as
possible & that they
will print no more than
fresh cost cell over a
see how many times
will go on again -

Some one almost do
steel out our battery on
Shanties and other machinery
and by standards, &
get reports if OK will then
start Campaigns -

Get Curves on several trucks
batteries 4 yrs old.

Get results of Curves of
Iron clad of American Express
Co - for our travellers -
use - possibly publication

Supply Express Lake on
our battery not competition
with leads

Buy Day - also phenal
MP 30cc 12 Formol & Phenal
30cc 15 "
Both MP & Phenal situated
with ammonium - See if
resettling resin is
any different -

Try Alkalic & trioxymethylene
Alkalic used very slowly -
Condenser

Learning - Java horse etc
protect Record Stock House
from fire - large investment

Also Divided about
Stock House for Marlow
& 2nd Machine He could

See page book about
face cut off face of the pocket

Bitley - put Vaseline on
& then use flat ampers &
thin down

See about Ford charton
on new machine

Moran - grind soap 7/2
perforations & make up
lot of gram plates for all
4 Dies. Crump when flat
press, this requires press.

Backman - Washboard
make up 200 or more
J 5 cells

Hiltman - In making Varnish
Rear miss. Wire as long
& if wire too thick can wrap
4/10th pane. This will stop
chips - use 3 sheets of paper
warm room

Moore - How about the
Edging lathe - the Plowick
Lawson

Grinning Dies about 2500
pinesaw dies,

Key - Ywa, test for strength
6/4 +

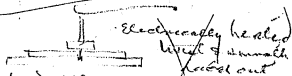
Smith to make Valt
offering 44 two cells -

Backman - Dad Smith
get tube making 11. x diam
so they don't slip in
tubes -
Also why don't you
move your man at Lab
over to Smith. Can watch
him - doing job now

~~Edison - How about
Mittens having have they
been shipped~~

~~Wilson to G. Rega to Repair
see card's Messrs. G. Rega -
sure they are hard to get -
may 1919 onwards~~

~~Dally - always needles +
small drops on bubble
repair - too much varnish
used -~~



~~Fred all -
Edison try rough test 1" dia
healed on hot plate problems
twist -~~

~~Almgren - How you get shock
absorbing spring on
also lever action -~~

~~Walter Miller about Rivers Shapton~~

~~Life out of Ocean wave
Old Black Ice
Old Dog Tray -
Climbing up the golden stairs~~

~~Story of the Phonograph -
write up -~~

~~Why should we see just to
be a father of what enough
critical -~~

~~Get some Valenti's filter
also set aside in long tube
1" dia in Ice chest to settle~~

~~W.A. - perhaps we go to
far in Ream should leave
- 22% should to get more volume~~

Go + look at our model
Vanitas, proposed the bldg.

Test Old Battery box
& lamp in it See Almqvist.

Model J5 battery box and
of box & lamp



leads and thus -

Ray
Dry ~~box~~ phenol. 60% formed
& dials but with 50% dissolved in
it - both put on together,

Saltman - 1025 + 5% less
formed + dissolved down to
22% free phenol in

See if Saltman has the
fine links -

Meadowcroft telephone ~~Adrian~~ now
if he will send have the books

Send Note to Bachmann
that when ~~Reformed~~
Cells are spiked out
that when new Sal part in
75% of original is given
back of ~~should be~~ sent
back. and all cells come
out in ~~it~~ - Explain
to ~~Presley~~ & ~~how~~ Smith
Thomson and ~~and~~ ~~Clay~~

Find ~~drop~~ on Committee
of Ford Studies of Metallic
Brushes all that may
any are

Smith - test A4 that have
no mercury in Fe on
Cold test -

Get from J. V. Miller some very
light loading (weight) Fe
6.8 or 6.80s

Load in short tubes then
Run in saturated lithium
in 21% (10) after 2nd run
add more LiOH, till

Ni takes up all it can
see it burst -

As sat Li bursts tubes it
must be a soft formed, Miller
says he had to prevent
bursting must have low load
weight,

Also change in saturated
LiOH - once, then change
to 21KOH 2.01 -

This permits Li to combine
with Ni - quarantined

Smith 2 cells Reg Fe 1 short
tube #1 at 100 -
~~5 grams lithium chloride in
2 1/2 RCH, try resistance life
and heavy discharge rate
with a drop same as above
with 21K 2 holt.~~

J. V. Miller gave me couple
pounds of the iron you
purchased for Miller Rec.
Want to make cold test
on it, with a without Hg in
New die -

Christensen - get solubility
of LiOH in 17% + 2.5%
RCH.

21K saturated with LiOH 100 cc
held 2.858 gm LiOH.

Make couple of CaSO_4
 Leached in Conc Sulphate K or Na
 also K_2S , ZnSO_4 , or other
 Very sol salt which Crystallizes
 Anhydrous - Then load
 tubs, then sink out
 Sulphate or Salt then
~~stone~~ Dist in 2 1/2 li
 It looked like low land
 lot of be. porous, & run fine

Couple of Regis depm
 Saturated dist, then put
 in 2 1/2 li - of cell
 plate

Victor has some well known
 names but no ~~names~~ ^{names}

State Fair
 County Fair
 Christian Eng. Assoc
 1500 Chautauque Institution
 1300 Elko
 434 Foresters Ancient order
 4149 " Independent
 1865 " of America
 1545 Eagles
 7500 Eastern Star
 576 Fraternal Brotherhood
 1150 " Union of America
 1276 Gleasons
 776 Heptasops
 1476 Ben Hur Tribe
 3850 Brotherhood of American Women
 540 Catholic Knights
 1204 Court of Honor
 1603 Knights of Columbus
 4884 " Macabees
 1400 " Modern
 1015 Mystic Workers of the World
 1879 Owls
 5291 Red Men
 4500 United Workmen
 16000 Woodmen of America
 10346 " " The World
 5234 Oddfellows
 1929 Royal Arcanum
 3057 Masons
 1526 Knights Templar
 133 Myrtle Shriners

87754

NY City not Brooklyn

900 Restaurants
7 Pic Nic Grounds
450 Clubs
800 Associations
120 Halls
135 Church Organizations
175 Churches
700 Hotels
18 Armories
450 Schools various kinds
2800 Saloons & Cafes
85 Phonograph Dealers
200 Piano "
175 Banks many have dining floor
400 Insurance Co " "

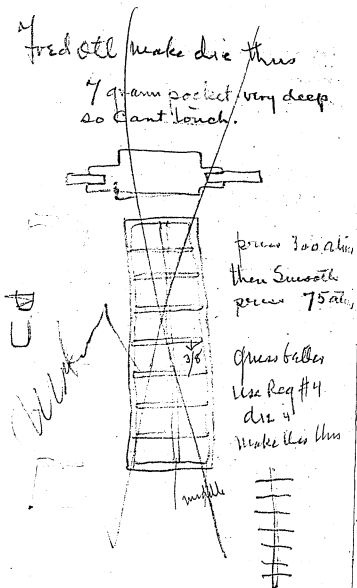
look back on daily reports
- get date when pull out in
transfer sheet also when
Records Checked back //

Without have a Log Book
Entering temp of floor room
of various making room
of temperature outside
Kind of weather +
temp of the cooling water

fred all, and up some of
the rubbery stuff fine down
20 mesh sand to vacuum
may have to mix this with fine
method the Report is to get
it fine -

Witnesses of both Discs
by Reports pply due to
changing strong moisture
(11)

4 Fred still make die thus
 7 gram pocket very deep
 so cant touch.



Follow up Rupert battery still
 returned in good shape with
 all the cells originally

Moors use same record as before
 with 6 Reg + 6 reprinted once
 6 reprinted 4 + 6 Reprinted
 8 times - 9 will be as first
 surface

Kennedy, look Nitro &
 Alcocellulose films in
 water to Shalsh

J. 5 - 625 temp -

~~Perth caps Reprints would
a different calculation~~

~~Think our Kap too thin
& dense Spangly - must
have less alcohol~~

~~Make some Visc work
to Peratin but 1/4% Pan
in the mixture amount
of alcohol possible~~

~~See if acetone is better solvent
for Ppim of alcohol (lean
alcohol a bit of little added)
reduces the Viscosity
also how small amount
of solvent or Benzal
will do it~~

~~Key Test on alcohol for
Cresols & alcohol
for % of alcohol~~

~~Get glass for mixing lamp &
start dropping test -~~

~~Lower all test which
is but solvent for~~

~~Reason for Pan liquid
to reduce viscosity of
Vermuth - 2% by weight
added Ethyl Herb &
then test viscosity -~~

~~Last part of Ppita in Kettle
probably was settings~~

Try Chloride of Para -

Try punch - punch out
1/4 disc of warm
Condensed ~~Vinegar~~
a Ream out ~~pills~~
outs -

see if small formal
on breaking alcoholics
sol of $\frac{1}{2}$ by HCl
then try when
there is ~~para~~ in

Find out price of
Bromine - Can make
Tribromophenol
Easy - ~~General in H₂O~~
made by ~~Br~~

Perhaps it wants little
oil in ~~Vinegar~~ - ~~Essence~~
or oil that ~~port~~ ~~decolor~~
much ~~of~~ that on
Easy alcohol ~~Common~~ and
that is an oil in ~~Paraldehyde~~

Smith is already
all A4 or B4 etc
with new ~~Chimpes~~
Fe at 100 Rate

Use salary for Bal
Inspection also expense
accounts -

~~Following Vaccines Tried~~

~~Alpha Naphthol - Marked in book
Very good - I tried it ^{alone} with
6/4 of Condensed to resin
bottle - Sept 30 Transp. very bad. Duplicates
at 9% 75% pure with 10% J.~~

~~Para-Toluidinechloride
Very good~~

~~Acetanilid Very good~~

~~Chl. Ammonia salivale
Very good~~

~~Green Dacum 59/50
Very good~~

~~Rosalic acid 2% good~~

~~Salicylic acid - Very good~~

~~Rhodamine BX Good~~

~~Jafraene Base 61% good~~

~~Pick out Wammamook
Records -~~

~~Patent by present
Mining camp -~~

~~Make list of 25 of
the Best General~~

~~Records -~~

~~Opera -~~

~~Prints -~~

~~etc. for Records~~

~~Try phenol alone +
proper amount 6/4 to
Harden~~

Appended at ~~the~~ *Franklin*

'The Horn' Skyhawk
82510 82047 80141

82034 & Silvery Colombs
50060 - Miscellaneous

Another ~~down~~ *down* set 1100 pages
favorites were

50060 50145 *uncat* *several*

50085 80141

Drifting 80105 80149 80135

50148 50078

W Miller *the* *down*
Mezzo 5 or *Drift* *down*
drift *down*
test

Get from ~~W~~ *W* ~~add~~ *add* sales
of ~~sales~~ *sales* on A4
for all ~~diff~~ *diff* uses -

Classon - Chicago
NG for ~~house~~ *house*
drifting ~~but~~ *but* it
do it from ~~orange~~ *orange* -

Call ~~the~~ *the* ~~all~~ *all* ~~the~~ *the*
to 450 ~~books~~ *books* & 120
dollars to ~~inspect~~ *inspect*
during ~~your~~ *your* ~~own~~ *own*
period

Baggs and ~~do~~ *do* ~~not~~ *not* ~~sell~~ *sell*
all ~~the~~ *the* ~~books~~ *books* ~~with~~ *with*
old records ~~they~~ *they* ~~do~~ *do* ~~not~~ *not*
want - ~~put~~ *put* ~~all~~ *all* ~~the~~ *the* ~~records~~ *records*
in a ~~ke~~ *ke* ~~at~~ *at* 25 ~~Records~~ *Records* ~~need~~ *need*

~~Joy Ruffone
a leafy quinine~~

~~Rest on Junetta - good~~

~~Wood Oil also shells
with Wax out also with
in place Sanguinac -~~

~~Get amount Sandbars in
N.Y. Bay & Alaska find
Enough Cable London~~

~~Sandrac from Coniferous
trees called Bear trees, principal
trees of Alps, Himalayas
Morocco, Africa, Italy, with
England - Also found in
a Dammar tree in Australia
Used in Varnishes like
Mastic -~~

~~Hydrosced oil with C_{12} metal oxidized~~

~~Joy Alternabe for Cleavals -~~

~~Joy Dragon's blood~~

~~Elemi resin imparts a
toughness to Castor Varnish~~

~~Gun Impoverish~~

~~Wm H Scheel~~

~~59 Maidenland in
Sandrac $\frac{1}{2}$ cast normal price
15c~~

~~See if can get rid bubbles in
Sandrac by degassing it
when dissolving Alcohol
ditto Dragon's blood &
Elemi X~~

Inclusive National ~~Kingdom~~ in

~~Adolescence~~

Order for ~~Saul~~ ~~books~~

Order Moore ~~go~~ ~~intensity~~ or
Sandrine

Get Collins & Berlin pieces
all -

Go through also ~~also~~ lot of
100 songs with a Collins

Chorus

~~condemning~~ ~~Musical~~ ~~chords~~
Drums - ~~Lithers~~ ~~Wankler~~

Guitar -

Cornet, Clarinet

More Cello -

Regatta's ~~Quintet~~ &

put a lot of good songs

& send into over

records, ~~francesca~~ to

buy up the common

pop music thus ~~over~~

Get lot of Comic -

See if ~~Barbar~~ ~~Cont~~ get
some ~~Conversations~~ ~~please~~
with ~~Collins~~ -

Halpin ~~Kees~~ ~~Wolkow~~

Write some circle records

Collins get a ~~telex~~

& use these for local

scraped ~~open~~

or a ~~autobio~~ ~~section~~

More to see ~~Saul~~ ~~over~~

& go ahead with old way

of ~~making~~ ~~Condensed~~

Substitutions -

Req up to ~~get~~ ~~CDS~~ ~~sales~~

Still too ~~slow~~

See ~~place~~ ~~of~~ ~~King~~ ~~of~~ ~~all~~

See Steel from NY about
Days production cases, what
they do with by -
also New Haven
also if Bay west with
Keep on supplying Benzol
also if Dupont will
buy Ethanol -

Get information from General
if Can get Benzol from
Mexico or Peru -

Analyze Hands Production
gas test -

If if ok if Can get
froma colco has two
production gas plants
on Colombia

See Prody + see if Can
Chill out Benzol -

also about: Boston Gas

See if Princeton Coal Co
have any remainder from
Whale in Pittsburgh (may
cost about by a Product
Coke even if always
less than etc -

See if Seawater by Prod
ovens are in operation -

Try Metallurgy + Seawater
for Benzol -

See if Benzol from coal
beds Michigan gas -

Lackup Works for
Neutralizing in 1/2
cellulose work has been
found out cellulose

Teleg. Laying stop
ordering at ~~moors~~
Printed from Condensate
Co -

GWA - Jans Eparky
Comm. also now
uses vulcan. fibers
Wants Mohel.
Condensate, water +
wear ~~of~~
Use detector on
a hand fibers -
See photo -

Try sheet with lines. Mill 4 1/2 on 1/64
appears for cell for cleaning
Sheet Cobalt, + sheet iron process super.

Send Ford Gatto Uranium
for detaching / escape
of water + fluorine

Columbia has lithograph
of artists. 24 x 16
good done -

To Mellow + gross appearance
of moors materials
put in funnels with
Carbon brasses
& Repellers with funnels
pointed to Recasting funnel

For Master records try
dip in my way of
a Hard Rubber band
also one made of poured
Sulphur -

Dipped Cold etc see
if cracks -
also dip wax blank

Learning Wholicap
back of our repairs
man -

Ultra Micro for Ford

T. M. Lynch receipt
He took Cash & Cobalt Co.

~~Ultrasound films of
Cobalt Cobalt etc
+ failure to make
Cold test for strain~~

~~Walter Miller get trial
Lucy Giles, see manual
America Nov 7
also of all def
Next to house now
singing - see Savings
Bethel Conn, West of #1~~

~~To Richard Martin still
with Victor
New England Baritone with
Dipped Wilford Douthitt~~

~~Doppel = Elam Painter
Hunt / Pelopon
Hearts of Oak - Product / Reminders
Hold your hand out / Naughty Boy~~

~~Grace Fjorde Open camp
Now in NY -~~

~~Steven's House sales Disc
in Australia - Argentina~~

~~Neo Edison written / Kocov key
The land of the silver blue
Waters / Calm~~

~~Bettina / Freeman
Pence / Down / Boston / Open~~

~~Wm / Frances / Rose
prim / down / replacement -~~

~~Maxwell / Wright / papers
Colonial -~~

~~How / about / Florence
Hunkle -~~

~~To / Fremsted / Tied / rep -~~

~~Better / go / to / S / Laker
see / about / Personal~~

1 = Try if ~~Benjamin's~~ ~~supernatural~~ like ~~usual~~
attacks ~~the~~

2 = See if mix of ~~benzoyl peroxide~~ +
H₂SO₄ can have better results
by lime + ~~100 mgal 5%~~ ~~lay Soda~~
~~the ~~method~~ ~~is~~ ~~not~~ ~~good~~~~ ~~Yack~~

3 Try ~~Danell~~

4 Try Long tube 12" of pump
+ add ~~extra~~ tube with
Kubler band so that of water
Column can be used

5 = Ask which ~~chemicals~~
will stand ~~up~~ ~~to~~ ~~stills~~ a
give us ~~500~~ ~~lbs~~ ~~daily~~

6 = See how much ~~para~~ ~~cost~~ ~~bars~~

find out how many ~~Extra~~
Writing ~~at~~ ~~least~~ ~~gone~~
out -

Woods - Beef a worn

Record -

Bees is heavy cut ~~spant~~
Kicking off little ~~racis~~

Get in my Southern ~~Germany~~
Wandering ~~Refugees~~
of ~~the~~ ~~woods~~ ~~at~~ ~~the~~ ~~is~~
Belgian ~~refugees~~

Trace ~~time~~ of
Lippin ~~where~~ ~~secret~~

U.S. Graphite Co
Saginaw Mich

Send 10 lb sample of
your highest grade of
Amorphous Graphite,
from your Michigan Mines

Try Cobalt Co Co Co
Cadmium Cd Cd Cd
in Storage Battery
for Cad Cap Co Co
west end of Log

Maxwell - Carnot cell
of Traveller Co Co
Mach Co Co Co
ex great Co Co Co
to Lib Co Co Co

Call Co Co Co Co Co Co
4 grams Co Co Co Co
K Co Co Co Co Co Co
nothing Co Co Co

Special Co Co Co Co
Niagara Falls Co Co Co

Very fine Co Co Co Co
oxide Co Co Co Co
to work Co Co Co Co
for Co Co Co Co
binder

With Co Co Co Co
then Co Co Co Co
K Co Co Co Co
in Co Co Co

Saville Co Co Co
Electrolyte Co Co Co
at Co Co Co
needs Co Co Co

Nov 18 on hand

13 days ~~Combustion~~

8 days ~~Reson~~

23 days ~~Heateh Carbide~~

14 & days ~~Para~~

4 ~~file printed right off on~~
~~carbide process~~

26
20

Displacement Test ~~Ca Sub and Temp~~
~~Reagent~~ ~~in 1000 water~~

~~Phosphoric acid 250 cc~~

~~Dry Caustic Lime 150 gram~~

~~Stocking water 500 cc~~

~~8" Column of mix in 2" dia~~

~~Amount Water Recorling 500~~

~~" " obtained 700~~

~~Water column above Lin 12"~~

~~8 1/2 Hours to handle
700 #20 had 99% of Reagent~~

~~Wants about 6" of
lime mix + 10" water -
for large tank.~~

~~Test Case on 250
m. column~~

Get up a Valium
interpretation Curve
of some well known
song

~~Hayes - Post out De Voss
Ele Wood Opera -~~

~~Whittier - How about
Wills -~~

Veal
Your Eyes # 7011.
180 Mac ~~Pauline~~ ~~prally~~
good ~~to~~ ~~write~~

Where are the ~~2~~
Disc Speakers get
them & have ~~color~~ fox
them right -

Case - get ~~13~~ and some
more ~~Pro~~ ~~books~~ -
note how many ~~be~~ enough
Dove Cars do it -

3330A When the ~~cell~~ ~~like~~
flows Make ~~Car~~ ~~letto~~

I say ~~4~~ ~~new~~ ~~passed~~ ~~this~~
time as "recovered" this way
its rotten ~~kind~~ of up -
I ~~was~~ ~~let~~ ~~go~~

Sung Young ~~fish~~ ~~Charles~~
Christman

found 2510A ~~Bo~~ ~~fang~~
left some ~~ampers~~

What ~~is~~ ~~reason~~ of ~~Repeat~~
battery

Ever in back 400 E is
all ~~Col~~ ~~let~~ ~~me~~ ~~and~~ ~~of~~ ~~man~~ ~~to~~
see how it works cold 350

401 is $\frac{1}{2}$ Co $\frac{1}{2}$ Fe

Yard Circular Calling attention
to all Circle dealers of the
previously improved Bluebird
records last month &
that of the Circle the
Ordinary disc, except in
well known how far they
are superior to these
discs. Surely will be
kept up & even improved

Really
Put racial man in Akron
& Canton to work in
connection with new
Exclusors 2 disc dealer
Get it on the Map
with Evansville Ind 70000

How many disc dealer
in Canton, or so a racial
man should go there. Vic Tinner

Device for putting in
white in edges of
Disc -

Are we using 25%
old blank frames
up -

David G Kerr

Don't act list & dc
on Superkinets until
I agree to it -

Parsons - Parsons if we
has good deal -
Jensen City (Hoboken)
Newark - Rochester

Recitals in ~~England~~ to
get people interested so
when time ~~is~~, can
do biz -

Have Yander hear
Malganers & see if
she has no friends

Weather try get
trial of ~~John~~
Sambrook ~~Leeds~~
Met of ~~inst~~

Smaller ~~accept~~ try Ni later
against Zinc negative Cold test

also Reg little cell - 27%
KOH also 33%
2 L.O.H., Cold test,

Also Cadman sheet against
Ni test, Cold test,

Need ~~script~~ did you
ask Bay way if could
supply us ~~with~~ ~~along~~
with ~~Ray~~

Oh - try Ni strip of Zn neg
with KOH little Mercuric cy
also look up ~~old~~ ~~spec~~ &
find out what makes it q
sol in H₂O₂.

try Fe neg & sheet Ni Anode
with ~~subset~~ ~~observed~~ ~~in~~ ~~20~~
~~grams~~ ~~of~~ ~~20~~

Try get Sulphur out of our
Carbolic - use ferrous sulph
heptox - try for Resorcin -

2200 Phenol daily -

1 lb Phenol		daily
Resorcin 1.43 lbs		Resorcin 31.46
98% Sulphuric acid 7.19		acid 15.815
Powdered lime 4		Limestone 8800
Soda ash 2-7-86		Soda ash 1612
Carbolic Na 2 lbs		Carbolic Na 4400

Have Winters duplicate
Spent on fuel on
a way also reasons

Winters - Duke of Wales Contract

July 12 1914

10 000 Disc daily

80% good - 12 500 made

Blanket Veneer	7 25 00
15 White Wax	18 45
15 Master Moulds	18 45
30 2 nd Masters	36 30
80 Wkg Moulds	96 80
5 Master Labels	23 75
80 Subs "	22 40
Grimes supplies	50 00
Pay roll	1437 00
General Exp New Dept	516 00
Talent	250 00
	3193 00
40% Genl.	1277 00
	4470 00
20% Selling	844 00
Total	5364 00

53.6 cents per record

2113

Try some ~~oxide~~ A4 cells
with some soluble organic stuff
to make Cobalt more soluble
in the KOH. This may be the
solution of why some cells
go bad & the cell load with
the Co & Bi.

If we coil NiOH in alkali no
NiOH deposits increase.
size of Crystals whereas if
we had a slight amount of
an organic or a Cy present
to make it slightly acid it might
make Crystals larger or
give better or poorer results.

Subscribes when you get
lighting - get valve from
Jimmy to date

Metal Tray Battery 6A4
Wt 10 lbs 12 3/4 oz
New type button 6 lbs 1 oz

Jan 29
Records in Cat & Supplement
389

New Sup 24

Next list 42

" Single 14

Not materialized 8

447 times 245 Discs

7 weeks ending April 5th/14

Average price rec'd

63.3 cents

Times on hand Dec 5 1913
Good not reconciled material 68
" " " original 94
" " " beautiful 27
" " " 194

~~Thompson - see Purbeck got people
 got sample of three lengths hydrocarbon
 from compression with gas -
 full pressure. 50% of gas
 is 6 at 2 hrs at hydrocarbon
 got 1500 lbs of this per
 ton of air~~

~~Bachman followed up the
 starter battery & put out 1/2
 day on Cars was known
 about.~~

	Cent
Cost flooring plates (2)	0.7
Washing	3.7
Recy Rot.	0.27
Inspection	0.26
Oven	0.01
Plate cleaning Solvent	0.30
Per transfer	2.23
Varnish (2)	2.18
Total	7.41

Lead Battery 3rd car
 425 amp @ 800 - 2000
 Mules. thrown away. Beach 5

1907

Buy Products Ovens

See CG Atwater United Loko &
Gross Co Whitehall 6/49 11/11/11

Cambria Steel Co 372
112 ovens
See at 100 gas for illumination

Lackawanna Steel Co
252 ovens Fuel gas

Mich. Alkali Co 15 ovens
Fuel gas

Dominion Iron & Steel Co
500 ovens Fuel gas

Novasethi Steel & Coal Co
120 Fuel gas

1000 ovens

Illinois Steel Co 246 - fuel
Carnegie Steel Co 246 "

Penna Steel Co 120 fuel

Tenn. Carbon Co 120 fuel

Central Pa. Coals 40 fuel

Retort Coke Ovens
Cleveland 105 fuel

National Tube Co 120 fuel

Go over to 9/18 at
with ~~Steel~~ decade
Research room

Pass 100 Cubic feet and
Newark gas there
M P Cressel & other
Oil ^{Per Gal 15¢ 30¢ or higher}
See how
much we can
get out of Bengal
agreed

Travel Return Milwaukee
Baiting or Leitch -

Railway Kansas City
Put it on map +
also ~~St Paul~~ -

Hatch - a big experiment
what they will pay
per gal for Toluene
distilled off 90%
Bengal - to 100.

Dec 3 1914
found Lachmann Steel Co
take 500 gal daily 2 years
at 20 c gal for CP Bengal,
or 72% at single price must
be at cost of 1 1/2 c gal
then 1st Call next 2 years at
24 cents + after that 1st
Call at market price

See Armes paper disc what
can be used for gas

Try wiping Condensate print with
Alcoholic ROA to dissolve surface
lake out chatters

Atto dip a print in
film dips as we now dip
celluloid

Atto thin shellac ditto
Condensate var. ditto
Smearlac dip thoroughly
3 then graftage

Take a wax disc - place ball
on top of it - same disc as
disc - put on a spring
(long) adjust to groove use
just enough pressure to
smooth the chatter and
run slow across to polish
out chatter -

Another distilling pot
See Ch. 11 -
See if can get 2nd
hand still -

Months supply 2200 lbs day
Phenol
Benzal CP 80000. lbs
Sulphonic 400 000
Limesone 225 000
Soda Ash 42 000
Caustic Na 115 000

Dec 30 on hand
Caustic 47500 lbs
Soda Ash 14 000
Picric Acid, 50 000

Listen to 2 violas
latest ~~Halzenhaus~~
Records -

Purchases of Cornu
& Helium ~~at~~ Leber
in same town
& all ~~cornu~~

8) 3000-
4000

(IIII)

200
4) 1500 lbs
250 day

||||

||||

|||| | ok

This is end bump
porcelain -

Side bump porcelain

||||

||||

||||

||||| |||||
||||| ||||| |||||

||||| ||||| |||||

||||| ||||| |||||

||||| ||||| |||||

Rubber Roll
concluded
here

4.9 meta para
Cresal -

4.7^{cmb} - Orto -

150 gal day

1 yr Contract }

450000

{|{|{|{|{|

2607 Bed -

2602 nest

40 -
14 26.

950/5750/8

4

26 | 140 | 53
130
170

{ }

{ }

5.

150
130
170
220

Notebook Series -- Pocket Notebooks
Notebook, PN-14-12-05

The dated entries in this pocket notebook cover the period December 1914-April 1915. The book was used by Edison to record ideas about business matters, experiments to be tried, and other tasks to be performed. Some of the items have been crossed out. Included are technical notes pertaining to batteries, disc records, and chemicals. The business-related entries include notes about disc record demonstrators and sales, production costs per record, and types of music that should be recorded. There are numerous comments about rivals Columbia and Victor, including remarks about their sales, sales techniques, and types of music available on their records. Also included are suggestions regarding a new violinist, new phonograph horns for use in recording, and the "new studio." In addition, there are costs estimates for the new chemical plants and notes about projected phenol and benzol sales. In the middle of the book are three pages of notes, probably in the hand of Edison's assistant William H. Meadowcroft, entitled "Manufacture of Carbolic Acid" and "Calculation of Wages for Labor Manufacturing Phenol."

Among the numerous Edison employees mentioned in the book are H. H. Meno Kammerhoff, supervisor of operations at Edison's new chemical plants in Silver Lake, New Jersey; chemist Victor L. King; engineer William H. Mason, who supervised the installation of Edison's benzol plants at Johnstown, Pennsylvania, and Woodward, Alabama; John V. Miller, Edison's brother-in-law and manager of the Edison Chemical Works at Silver Lake; William W. Dinwiddie and Sherwood T. (Sam) Moore, two of Edison's principal assistants in the development of disc records; John J. Riley, manager of the Demonstration Dept. of the Recording Division; and construction engineer Seaton M. Scott. The inside back cover is inscribed "Liebold." The pages are unnumbered. Approximately 150 pages have been used.

Dec 5 1914

Try A4 Cells with some Stable
Organic substance in solution
to make the $Ni(OH)_2$ very slightly
soluble. Use $CoCl_2$
It may be necessary to use small
Cells as better than A4. more
Organic per tube -

Might accept $Ni(OH)_2$ but
with Green Soda no. 1
Organic matter in To make
it slightly sol. This would
make $Ni(OH)_2$ less soluble

~~Carbide Co 372. Repe P
systems - don't use gas for
Kummiting~~

Lackawanna Steel Co 252
Ovens don't use gas, can
get out at full temp 1200
of at Benzel daily cost,
1 1/2 Cent of gal

✓ Michigan Alkali Co Wyand. Mich
30 ~~Ovens~~ use for fuel

Dominion Iron & Steel Co
500 Ovens use for fuel

Nova Scotia Steel & Coal Co
120 Ovens use for fuel
Thames Coke Co South Charcoal Pa
212 Ovens gas for fuel

Ill Steel Co 280
Carnegie Co 240 pure for fuel
Pittsburgh City & Toledo Transportation Co
fuel & elimination

Penna Steel Co
120 Ovens fuel

New Haven Gas Co, distill run 100

Corbellew Low Gas Co -

Tenn Iron & Coal Co fuel
120 Ovens

Central Iron & Coal Co fuel
40 Ovens for fuel

Refort Coke Ovens Co Cleveland
105 Ovens

National Tube Co
120 Ovens use for fuel

Pentech Gas Co second distill gas

Go over to steel from S. heat
with Bachman decide
about Chicago

Distillation of Milwaukee
Batter for S. heat

Michigan ~~Manufacture of S. heat~~
Y. heat ~~on S. heat~~ S. heat

Offered Lachawana Steel Co
Make 500 gal. CP/king of
2 yrs at 120¢ gal. CP.
using 72% less cost of distillate.
1 1/2 C gal. then next 3 yrs
1st Call at 24¢/other Call
1st Call at Market

Des if Alcoholic Kott, w-ccc
w-ccc out Challes marks
on a Condensate w-ccc

Des a Condensate Market in
18th than Condensate or
24th in Bengal
So have a blank on company
Buy or graze - Sundewine

Take Wax disc record
+ a ball same disc as
Kuffs wanted all long
spring so not hunt hills
two yrs. ant Challes
marks etc. then grafeloge
Run slow, no weight to
be used

2200 lbs daily of Phenol
Requires for month
80000 lbs Benzol
40000 lbs H₂SO₄
225000 lbs limestone
72000 lbs Soda Ash
115000 lbs Caustic Na -
as made Dec 5 1914

Stetson Trans Co Philadelphia
Sells Stinson - Philadelphia
Landmark a German in
charge - Very favorable
Riley favor!

Cable Wagoner if he
can buy 4 ships 90 per
1 Kenyon & price 46
N.Y.

Listen to latest ~~Wagoner~~
vic records -

Get 3 Morell's specimens
some known & old
locus. Contact each
Ore. loc.

Follow up Receipts & other
returned Galleries -

25 gms. 225 cup

Moore try a receipt on
a very short schedule

How about old 4 done &
returned Galleries. What
was done with them
& Original set in solid
Several samples over
What is being done with them

Sell all sold of a house
25.0000000000
selling scheme

Get on ^{Blue} Junetta good

Look up work on hydrating

Windows Display - Columbus
Shows article 24 X 16 -

Get hand of the sky blue version
by Condon in it written in
Lester Key

Is frustrated tied up -

Get dealer Maguire fields
Keate, its all Victor

Nov 18 - 148 days supply ~~|||||~~

Yours Eyes - 70 III Victor

Geo Mac Farlan 13 mile
pretty good -

Displacement test

Pengolaulfonic acid	250 cc
Dry Caustic lime	150 gram
Shaking water	500 cc

8" Column of lime mix 2" dia
Water Column above mix 12"
Theoretical amount of water
should be 500 cc
got out 700 cc nothing left in
lime - but trace -
Time 8 1/2 hours -
Suggest 6" thick lime in big
tank 4 10" 10' cubes -

Hayes sent out D & Perry Wors
O'Brien, probably a special -

Get up a volume interpretation
Curve of some well known song

Enter on Rejuvenation books
400 E. is ~~Ch~~alt instead of
42 & 401 E. is $\frac{1}{2}$ Ca $\frac{1}{2}$ 42

402 is all Cadmium from
hydrolysis by H₂ for cold
tests -

Polley - Akron ~~Ch~~ work
in conjunction with Exclusion
deals - put on map

ditto Evangelista if we
have Exclusion

Have 102 in days of
Exclusion in ~~Tran~~

We need an auto device
to put in white on edge
of records.

Don't set that on Superkinds
till I agree.

Have Jandras here
Marguerite see if she has
no French + no in quad
voice
Try get trial of new German
tends) show ~~Stem~~ break
at Met of me one also Botta

Have fred all my Zinc & ground
Ni tubes for about
6 days also also Starke balls
if OK try Cold treat on it
in little bag in Kea.

try Cold treat / small cell
30% Li

also Ni tube Gudman
sheet, C & O lead.

fred all sheet Ni & 1/2 kg
use Cabot also Ni
with Jordanie in inf.

10000 disc
80% OK

12500 blank

Blank & Venus	725 00
15 white wax	18 45-
15 Masker Moulds	18 15-
30 2nd Masker	36 30
80 Uteq Moulds	96 80
5 Masker labels	23 75-
80 Sub M	22 40
Printer supplies	50 00
Pay roll	1437 00
Genl Exp Disc dept	516 00
Station	250 00
40% fuel Exp -	1277 00
20% selling	894 00
	<hr/>
53.6 c Record	5364 00

Wallow - what are
we getting out of
W Va Limestone Mill

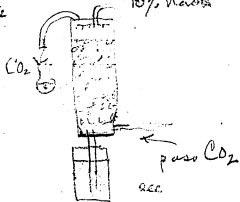
2 Xyls in 3rds -

Must Wash our
low grade 90%
Benzol with H_2SO_4
& filter thru Wash
& Water & Olefins etc
before distilling -
See Knowns & Unknwns
German Benzol works -
Must get ready right off

Distill Purify gas 5 gal
sample - rarely contains less
than 50% Benzol & Solvent
For distillers/doubt buy it
to hard to see from Hydrocarbon
mostly Olefins - I think H_2SO_4
& Wash will help -
Considerable Cyclopentadiene
Some Cresols

Can Chlorinate Hydroc by
pressure Chlorine & distilling
off Benzene Lunge Val II
p. 40 breaks all piene
acid process for removing
Hydrocarbons from
Purified gas liquid -
& think Piene Chlorine
with the Hydrocarbons

2 ltr. qst 6" pipe
 3 ft high fill with
 1/2 dimensions calc & sand
 10% NaOH
 eye



NaOH - dry equal amount
 in weight of H_2SO_4
 Benzene ~~or~~ or exact
 theoretical & add 10%
 Extra Benzene - take long
 time heat & wash off
 Benzene - see it all
 Polyvinylidene etc.


The Devils Trill
 played by Fritz Kreisler
 intricate technique

Neo Violent

Pablo Casals -

Kreisler says he is wonderful
 Suen Suen is to -

Learning where is
 the Benzene put we
 have been necessary
 for Benzene

 Constant Curled
 Home combinations
 to equal big flow

See where Mrs Barrett
Creative Company
sell it also Bay
Way MP -

Schniewind Coke Oven
Co Indianapolis Ind
Buy Pro. inc oven

Methylation of benzol
to salicyl. passing
Methylchloride thru
Benzol in presence
of AlCl₃
After 1 methyl 2nd methyl
2 or 3 or 4 on up -

Get James Heller Brey
Co about the 20 was
yell & have bearing
border Kammhuber
ship it -

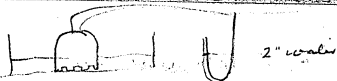
75 HP Motor for
Air Comp died
I tell Charles

Ventilation of
plate blowing room
& partition

20 wide ~~12 ft high~~
30 long ~~cut for~~
water ~~1/2 in dia~~

kind of ~~pedale~~
Chilling out
Bengal ~~Cost plant~~

Big up agitator &
Clean ^{out} 90% Bengal
with Sulphuric. Think
it will make OK final
then -



one belt 40 ft hour
Bell washer

17 Records per
gal Pure Bengal.
basis - 5 lb phenol
gal - 34 records
1 lb phenol -

17
 $\frac{500}{34}$ Records

When new studies done

Play Espino-Melodic
beautiful, bad low
lay Crookite -
Who is Composer -

Pat new Silica of a ZnO
& Boron,
I got enough of several
samples get crushed
& start analysis

Nitro acid convert, Amine
into phenol -
"but use Aminehydrochloride
& Silver Nitrate" & wonder of
Na Nitrate will do -

Diazobenzene dissolved in
dilute sulfuric acid & the
theoretical amount of K Nitrate
gradually added in aqueous
solution. The product is
then washed with water
when phenol is formed
$$\text{C}_6\text{H}_5\text{N}_2\text{SO}_4\text{H} + \text{H}_2\text{O} \rightleftharpoons \text{C}_6\text{H}_5\text{OH} + \text{H}_2\text{SO}_4$$

Patent new electric
with warm running
gave & required

Phone McPherson ~~W~~ get a temp.
of his gas entering gas holder

Phone Boy way if they can
furnish a bar oil

5% nat distilling below
390° Fahr + 90% distilling
between 390° + 572° Fahr

Quantity + price of the
Could send 5 gal sample
not more than 7% Naphthalene
or 1% of boiler

Badman ~~also~~ call

70430 in 4 days

get less money

Substitute some of
Absorbing oil + make into
Cathodic sec. of Condenser

Morrison -

Why didnt you man
work on fuel + on
grounding ~~W~~ hold

We are in desperate need
of them I guess the man
is not in want of work
Why not give somebody
else a job that needs
work

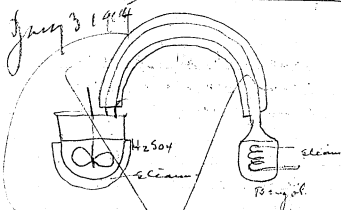
Why dont you get the
face plate needed that
was ordered a week
ago -

Thorne & Co. ~~Thorne~~ What
temperature can be gas
when it enters the gas holder

Think can Cambridge J.V. Miller
Sulphate soda to get soda
for plaster well gypsum
to cement works.

Can Benzene Sulphate Ca
be chilled out of the mix with
H₂SO₄ -

lay out of
affairs to be
submitted to
me. —



Super-heated Benzene vapor
Benzene vapor could be carried long
ways - reaction would be very
rapid.

Burnside + Anderson Glasgow
Scotland: Brit pat 23605
Oct 16 1913. Use steam
to settle dust by electrolyzing
the nozzle which is fine part
the microscopic particles attached
to the dust + coalesce -

Wash oil Soda, H_2SO_4	1.01	cents
Steam	1.1	
Electric power lighting etc	0.5	
Wages	0.4	
Overhead	0.2	
Amortizent 3 yrs 30000 -	3.7	
Reduct'd to 90%	1.0	
Reduct'd to pure	<u>1.5</u>	
Cost,	9.5	

1
 15 Cents basis for oil shipped
 Nets to 2 Coke G 5.5 cents gal.
 2 pays in addition less of
 Calorific Value, 1 Cent gal.
 Total price paid 16 Cents gal.

Our normal basis E gal 230 cost 16¢ per
 selling exp. material + reduction, say 1.5
 Expense 5.5 gal

Used 200 cc H_2SO_4 - or 350 grams ^{100%}

Used 500 cc Benzol

Found 2.15 gm free H_2SO_4 - 100%
 83% strong 62 B count

5 Hours at BP of
 Benzol

We now use 110 litres Benzol
 175 " H_2SO_4 100%

This is 1 part Sulfonate to
 1.85 parts free H_2SO_4 100%

Our 5 hours experiment as above
 gives 1 part Sulfonate to
 1.6 parts free H_2SO_4 100%
 an improvement,

fine screen for oil
Keep Excavator out
so as not to choke
Nalco oil distributor

How many 250 on hand
today

Dunwiddie Kedron Chilling
Wax Expts - Supplement

A harp sounds sweet
because the string has
no stop like a piano
If we put a dash part of
string device on the
damper of piano to
dampen slow we would
improve sweetness

Nalco Cellulose Co.
started

See if we get our money
back on drums & see if
we return all drums
promptly

go down see the little
shop we rented near
works

How about salvage of
Reed tool room tools
little Stock Room

Get last $\frac{1}{2}$ of all
Why No ~~Get Cells~~ -

Moore bet. Cox & Co
wont have powder
blanks running
Monday

Linseed 100 lbs
35 2nd

Ground for floors
Cement, see who
can mix it,

Get proportion of sales
in Selected by City
to Total sales - USA

The lightest pressure on $\frac{1}{2}$
is best for V. of High rate
also when $\frac{1}{2}$ get, dense
to Capacity bad. These
gases to powder must have
Channels - film of
Cellulose Salt fines etc
or fibrous powder which
dis in Rott. Even as powder
might do \angle Work it up
Acetylaloma + dissolve out
by solvent after iron run
& consolidated

All reports of Repair men
Come to me = I have a
Clerk to tabulate -

385 to 392 - ~~get Cold tanks~~
important asset

Do not consider General
Sprinkler people they
die in an instant

Learning - Only Learning
working - none in old
bldgs -

But do you already
discharge cell so that
it will give the proper
Cap at hour + X time
then you may have increases
the size -

Warrant runs 368 E
27th min 1480 - its about lunch
cooked 24 hours Come to old
then put in 21 Kott only no hi
& put right on clearance

also 370 E no nickel plating

also 357 look good 82% increase

Trade abuses 2 ^{only} off cash
Take back any old bags
6 C Extra Bin Storage
Plaintiff Contracts to
dealers over year
whereas want it only
30 days -

7000 new Dixes
Gross - Amherst 30

Monday. Sales Board
28 females \$150

~~611~~

55 Males wanted (19 females)

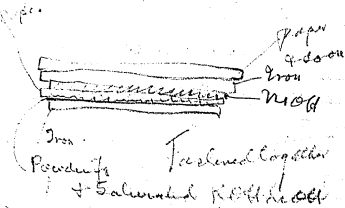
Run truck on Cobalt in
place for see how low
Can go cold.

See Miller about Dept.
Cobalt get high capacity

Walcott of
Bourne & Co

Boaters Ny

Sargeant Orange
Knows Lockman
Steel Doctor
Charles people house
man. Parquents
Scales



Collected by H.

406E	screened	30 mesh	no H ₂
407E	"	"	4% H ₂
409	"	"	10% H ₂
409	"	100 "	no H ₂
410	"	100 "	4% H ₂
411	"	100 "	10% H ₂
412	"	180 "	no H ₂
413	"	180 "	4% H ₂
414	"	180 "	10% H ₂

Ward

Requires 300 lbs CO₂ to liberate 500 lbs phenol from Soda Combination

for 10000 lbs requires 6000 lbs CO₂
 say 2 1/2 tons Coal 3 sample

44 lbs CO₂ neutralizes 232 lbs Na Phenolate -

44 lbs CO₂ neutralizes 80 lbs Caustic Soda

Must be wrong

415 E # 2208 B1 Redox Co at 1100

~~OX made from Co Soy Screened 30M No Hg~~

417 E # 2208 B2 Redox 1100

~~OX made from Co Soy 30 mesh 5% Hg~~

419 E 2208^{DI} Redox 900¹
Byrde made from Co Soy 30 mesh No Hg

420 2208 B2 Redox 900^a
OX made from Co Soy 30 mesh 5% Hg

421 # 2211 A self/ground 30 mesh
No Hg

422 2211 B " 4% Hg

423 2211 C - self/ground 30 mesh
10% Hg

Profitable - Nitrobenzene
Aniline Oil - acetic acid
Benzoic acid, Salicylic acid
Picric acid - Diphenylamine

get numbers

Rebalt leg H. (YVM 2212 E)
Reduced 1100 deg
Now 30 mesh 5% Hg -
on table screen room

How would it do to send letter
to all of best food men over
we had to go into phone
by E ship -

424 E to YVM
(2212 E) Rebalt
at 1100 deg Screened
Now 30 mesh 5% Hg

Manufacture of Carboic Acid

(1) Consumption of raw material;

Material:	One t of Phenol needs:	
P. Benzol - 40¢ per gallon.	1.42 t =	7.6219 cents
Sulf. acid 98.7-98.5% per t	7.19 t =	6.1115 "
Limestone, 0.245 cu. ft. per t	4.00 t =	0.9800 "
Soda ash, 1 cent per t	0.733 t =	0.7330 "
Caust. Soda, 2 cts. per t	2.000 t =	4.000 "
<u>Total material per t of Phenol = 19.446 cents</u>		

(2) Consumption of Coal, fuel, oil, water;

One t of Phenol needs:		
Coal for evaporating, 0.185¢ per t	5.5 t =	1.0175 cents
" " heating, etc. " " "	2.7 t =	0.5000 "
Fuel oil, 0.415 cents " "	1.318 t =	0.6000 "
Water, 90 cents for 1000 cu. ft.	4.26 cu. ft. =	0.3820 "
Coal $\&c$ per t of Phenol		<u>2.5005 "</u>

Total cost of one t of Phenol.

	at 22.00 t per day.	at 4000 t per day
1. Raw material	19.4464 cents	19.4464 cents
2. Coal, fuel, oil, water	2.5005 "	2.5005 "
3 Wages	4.8100 "	3.4505 "
Total	26.7569 "	25.3974 "

Jan'y 13, 1915

Calculation of wages for labor Manufacturing Phenol

(1) For 2200 t per day:

Operation	Men		Cents per hour	Work hours per t	Total hours	Total wages for 20 Cents
	Day	Night				
Sulfurizing Benzol	1	1	20	23	23	\$ 4.60
Lining	1	1	20	23	23	4.60
Filter press	3	3	20	23	69	13.80
Decomposition	1	1	20	23	23	4.60
Concentrating	6	6	20	23	138	27.60
Fusing	2	2	20	23	46	9.20
Neutralizing	1	1	20	23	23	4.60
"	1	1	24	23	23	5.52
Distilling Phenol	1	1	20	23	23	4.60
Transporting	2	2	20	23	46	9.20
						\$ 88.32

(2) For 4000 t per day. Same as above, plus:

Filter Press	1	1	20	23	23	\$ 4.60
Concentrating	4	4	20	23	92	18.40
Transporting	2	2	20	23	46	9.20
						\$ 32.20

(1) Wages for 2200 t Phenol = \$88.32, or 4.014 cents per t

(2) " " 4000 t " " \$32.20, or 3.012 " " "

Jan'y 13, 1915

(45)

al made by ^{of sodium} Chlorine
on Bromine engine + Methyl
Iodine ^{mercury} Ethereal Solution

Perhaps Castner Cell using NaCl
give Hg Na amalgam will do this
by Na₂O + NaI Can be regenerated
by Sulphuric

Nikiforow German
Pat 143549

Heat Crude Pet oil to
distill in horizontal retorts
1st at 500 cent then under
vacuum pressure at
1000 Cent - H₂ gets.

12% of the crude oil
taken is obtained as

Benzene Toluene
1/2 Anthracene +
2 to 3% Naphthalene

This patent only describes how to
separate

The results not on the
forming - Has taken out
patents in all countries

German Pat 133761

of Schwabe
purifies Benzol from
Sulphur Compound,
CS, Thiophen etc. He
uses moist Ammonia
under cooling of H₂
increased pressure

Only done from which
collected under the
Benzol. The washed
Benzol is perfectly
free of sulphur

process

Practically Benzol treated with
Sulphur Mercuric acetate
another use Sulphur Chloride
both take out Thiophen

Diphtheria ~~same~~ found out
how to make it. —

Organys separate dept
Entered including
looking up records &
all for separate records

425 E YVM # 2226 A
Co by # self reduced at
900st OX made from Co 804
then 30 mesh 5% Hg

426 E ditto no Hg

427 E YVM # 2208 C1
Co by H. Reduced at 1000
oxide from Co 804 screen 30 mesh
no Hg

428 YVM 2208 C 2
Same as 427 but 5% Hg

429 YVM 2208 A 2
OX from Co 804 reduced at
1200° OX screened 30 mesh
5% Hg —

430 YVM 2208 A 1
Same as 429 but no Hg

If after phenols freed by CO_2
our mix is limed, it is probable
that when it is concentrated
we can add a large quantity
of fresh Caustic. The
Na Sulphite will be
salted out process should
be done at 150 Cent.
Exp pat 14987 Aug 4 1894
Solvay Co

Find out if Beils of Benz
Concern are always used
before goods -

Viscose Cotton to absorb
Carbon Dioxide from
Benzol -

Holegrove 1914 French Pat.
460 827

Oxides Ni²⁺ Co²⁺ Cu²⁺
deposited on porous
big surface - heat vapor
vapor of hydrocarbon
gives large yield Benzol
J. 1914 page 117 -

Riley Dept² near to Palm
Beach Reg Rec + 25 50 lbs
Miscellaneous - Coal
Hatch etc -

Talking points, only met can dance
to so keeps perfect time? With
Allochments every known success
can be played not be walk others.
Doctor Surfers no matter how
celebrated not need voice of
voice not good

CSJ

Riley - Cant up get up scheme
to know if any secret, give
Scales, by handling & measurement
Card use which I know name
is written & remark & card
has been to secret, break
him right or words to
that effect.

How about C. K. & K. M.
Your men by our respect
see how they act.

Kammerhoff & Co
Checks & Bonds
with acid & Benzyl
used

Kammerhoff has
no Benzyl tanks in

Can Cartridges up to
20 TW at 123 its not
Completely Cartridge on 92's
Cartridges - Lungs. & K. M.
\$ 801

Pars on hand 10th
Foley 650 lbs on hand

See if fused phenol etc ladle
to still & add sulphur
& distill off phenol.
Export with Na₂S₂O₅

Proton and send no letters
from Jan 30 till 11th
hard had not understood
letters

Try Hypochlorite on Benzylsulfide
of Calcium - may make phenol

British Pat 1727 Z July 28
1913 J Holcqvist

Benzol is obtained by passing
Vapors of Petroleum or its
distillates together with
hydrogen thru a tube
containing catalytic materials
heated to 1180-1350 Cent.
C₂H₂ is formed then polymerized
to Benzol. Suitable
Catalysts are Fe, Cu, Zn
with Ni Co, Ag or Pt or mixtures
thereof.

Benzols

Guttman's Mixture of Explosives
also Kessler's "Springstoffe"

3 gals Reg Var add
add 1% solution of NaOH
to the resin. Drop with
1/4% ~~staple~~

Sell capd / ~~German~~ Silva

Mono benzene sulfone acid

After sulfonation, ^{and acid} drop by drop ~~into~~
constantly stirring drop by drop ^{into}
Cold Concentrated solution of
Salt, put vessel ^{replaced} by
water while putting in ~~the acid~~

After some time & more quickly
by rubbing walls of beaker
with sharp edged glass rod
the Sodium Salt of Benzene sulfone an
separates out in the form of
leaflets with gray tint.

On long standing this quantity
increases so much that beaker
can be inverted - if separation
of Crystals be long delayed take
few cc of it, run ice water on
outside test tube & rub inside
with glass rod at each of corner
Crystals & these come out in
the big batch this has been
the Crystallization

It may require several hours
standing before all is Crystallized
out

The sandy mass of Crystals are
filtered & firmly pressed down
& washed with a little
Saturated salt solution
It dried by putting in bags &
pressed by heavy pressure
The dried substance is dried
at 110°C

If want it pure dry in
Hot Absorbent Alcohols
Salt don't dissolve

Dinitrotoluene

Nitrated in stages
Solvent should be very pure
1st to consist to crude Mono salt
1 part solvent with 3 parts by
weight of mixed acids (2 parts
Nitric Sp. Gr. 1.495 to 3 parts
Sul. acid 1.84.

The mixed mono derivatives are
then nitrated to Dinitro by
action of twice its weight of
the same mixture of acids &
finally the product is treated
with still stronger acids

A better method according to
Hausman is to slowly mix

with constant stirring $2\frac{1}{2}$ parts
by weight of the mixed acids
1 pt Nitric 2 pt Sulphur of
strength previously stated
with one part of Paranitrotoluene
heated to about 60°
The mix is heated for 1/2 hour at
 80° & then allowed to cool
The mix of Dinitro (crystal)
is then dissolved by gentle
heat into 4 times its weight
of Sulphur of same strength
& then mixed with $1\frac{1}{2}$ times
its weight of Nitric of same
strength Keep cool

The mixture is then heated out
 $90^{\circ}-95^{\circ}$ with stirring for
4 or 5 hours. After cooling
the crystals are separated

from the acid washed first
with hot water then with very
dilute soda solution &
allowed to solidify.

2 qualities obtained according
to purity of materials & character
of nitration, one has MP 72-74
the other 77-79 - for military
purposes a 3rd quality MP

80.5 to 81.5 consisting almost
entirely of the symmetrical
isomer is obtained by
Crystallization from alcohol,
light Petroleum or Toluol.

The Cryst are free from Sulphur
by Centrifuging, & heated
in inclined cylinders heated
by a hot water jacket

Cryst from Alcohol sulphur
yellow Cryst from Petrol Toluol
Buff Color, darkens by light

When pure no odor practically
insol in water cold

Application of flame burns
with smoky flame, Current
or exploded by flame
& only quite locally by
percussion, as much as 1000

Kilos have burned away
quietly in a Confagrator
It a bullet from rifle can
be fired thru a solid mass
without causing Explosion
It is quite safe to handle
& is stable under varying
atmospheric conditions
It does combine with
Metals & generally

has no acid preparation
its dust or vapor are not
irritating or injurious to those
working with it,

Its melted & poured in shell
may be poured to form almost
in a piece

~~7~~ Fire safe in Lab
& facing it of storage
hallway also in

4 1 shiny bolts at Lab -

1 = Make up sample rocks &
boxes for ~~portable~~ screw Mac
Dept,

2 = Find out where ~~X~~ Angel plant is

3 = John Old left speaker (weight
& feed lever) to be removed
with raising & lowering
horn, applied to new Machine -

4 = Try Cady in the 200 cc
mixed acids - ~~sent~~

5 = Ask Maudslott how long ^{from} take
to systemize Harlowe & film &
start thick off -

6 = See Harlow about weight of wire
for General I ~~set~~ wire paper
Play way ~~strip~~

7 = Plans for 5' 4" High still
4 of them - or 40 ft 12" low ones -
4 of them 2 or 3 turns of steam
pipe each section

8 = Speak to ~~Wagner~~ about
Carnegie sales for Wash at
Cumbria -

9 = about ordering 2 more
Hazel at Cumbria -

10 = Get Koons answer re how he
will ship -

11 = How is it Charles Cant get hand
any parts a get statement made
we will resemble the work of
the Cyprianus Moss house -

12 = See about fixing up long
Concrete bldg next to the House
retail -

13. Mays plan to rebuild
part of # 11 Hotel off down

14 Simpson design iron rack
hold part boxes in screw
dept after Mindel Mindel coorke

15 Simpson design water
jacket. Netral ^{part} hold
2 galls 3/4 full like cut
in Phillips Ex etc
Make 2 or 3 of them -

16 = See what kind apparatus
Christmas coasts to
Acetylene Fluorine oil

17 = Scott design truck
to carry motor to Cabinet
assembly - ^{also} also Van
racks to hold motors in
assembly room to test in
racks -

18 - Design travelling belt
assembly of 4 machines
with Tables -

19 layout of shafting machines
by Heller or Scott with
trucks bench marks etc to hold
material unfinished + finished
also

20 = Scott study screw machine
oil & chip blz rollers etc
possibly take things to
Harford - a

Werner buy from a
Machin Celluloid print
out to a way + put it
there all if we go
as a Celluloid -

Riley I note Chas Kosh ^{Cleveland}
Cleveland had sent quote
numbers present in his
report. How about the
how and chief figures
Correct numbers

172 - Cy & Disc

329 - B13 tables crane + chaser

501 Screws Machine parts

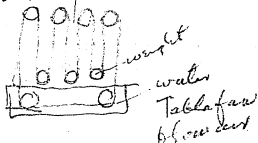
415 Kunits

916

Send for Home Catalogs
show ~~for~~ illustrations +
data as to speed of 172
productivity parts 194

Order way get rid chips is to
get a way unaffected water
Record + Wash face with
water try it,

Use presert cloth



Saturate the almos with
water. - in 7 p.m. & perhaps
Recording sheets

12 samples Celluloid
Discs - defects of
Celluloid C's

Do large all but small / cases
No. 1000 & 1000 / 1000
we could be experimental
Disc & use to plot samples

Never make record from
2 Disc + Vic type air
to use process to
show difference.

~~Handwritten scribble~~ - some
Stop the Allen

See Riley about Scott. Show
+ Morgan - ~~pay attention~~

(Belly - ~~Portrait~~)

See about Canada
acid mixer

J. V. M. - ~~Have procedure~~
with faint ~~...~~

See about getting more
Tigs for Top plate Disc &
Cylinder -

Try rubbing ~~etching~~
over with pure lanolin
+ then removing all possible
+ graphite

This might give oil to bath
+ be bad might try

Press casing with a highly
polished plate then gradually
it + cover it so by thousand
thick then print + plate
see what it does.

Moors = How about that
Buffed record report
progress early in afternoon 2nd/31

Try ~~acid~~ ~~etching~~ ~~discs~~ ~~dots~~
instead ~~etching~~ ~~discs~~

See how ~~etching~~ ~~plant~~
drawings ~~etching~~ ~~on~~

What ~~is~~ ~~the~~ ~~use~~ of Edgway
Machin ~~is~~ on ~~the~~ ~~main~~ ~~line~~

Find ~~at~~ ~~the~~ ~~old~~
Ropper ~~with~~ ~~monocles~~

See if $\frac{1}{4}$ of the absolute
of amygdal will also break
at surface of Yarnish or
plate.

What ~~can~~ ~~be~~ ~~found~~ from the
Barnes ~~map~~ - no report

Can we ~~copy~~ ~~right~~
Diamond ~~depos~~ -

See ground plan Silver
Lake for ~~Physical~~ ~~plant~~

Higham ~~Galaxy~~

Where is ~~work~~ ~~by~~ E. ~~Qua~~
Reports -

Discoidal ~~ventilation~~
new film ~~vent~~ ~~to~~
specie double ~~discs~~

Write ~~the~~ ~~first~~ ~~dec~~ of Japan
some ~~peripheral~~ ~~heat~~
Glee -

Give full ~~the book about~~
~~we can't~~ ~~the stages~~

Diphthylamine - 55
Sulphonic acid
Acetanilid 50
Benzocaine 115
Anilin oil 65 - salt 65 lb
Nitro-Benzol - 35c
Resorcin 1.25 lb
White lead ~~about~~
guarding against
Explosion -

Belt for powder dishes -

~~Ammonia~~ ~~dean~~
Cooling basket
for cylinders

~~Dimord~~ ~~for~~ -
~~Wash~~ ~~new~~ ~~des~~ ~~was~~
~~dry~~ ~~of~~ ~~sp~~ ~~file~~ -

By adding $ZnCl_2$ ~~acetanilid~~
~~time~~ ~~is~~ ~~shortened~~ ~~3~~ ~~times~~
Heat ~~45~~ ~~grams~~ ~~pure~~ ~~Aniline~~
with 3-4 gram $ZnCl_2$
475 ~~grams~~ ~~AcOH~~, in a
flask with air cooled
reflux tube for 3 hours

pour product into wash
wash the boat include
with cold water
Re crystallize from boiling
water

It is economy to use pure
Aniline to avoid economy case
etc.

Put man on recording
Punch-Drill etc requirements
for men -

Write ^{form} form for pieces on
Shelving & boxes & others
on boxes, also what we can
do ourselves on boxes -

Extra line of shafting Each
Dept put into so as not
disturb S&B but plant best
more in sections -

Design General frame for
Moving parts also one for
Stock f

Also Hoists for Screw
Clock, also other stock

Big stock S&B Room
Small stock S&B Room
Steel Shelving

Wheel way from grinding
Dept to #11 Elevator.

Track way from top of hill to
Stock -

Arrange to use the 2
bottom short L's -

Seat layout outside
working - painting, position
Ladders, etc -

Drainage works ground

Dipping room, Air Cooling
Foster f

Cooling plating bath
Small Machine - look them up
etc for work 1917

How about Vice & lanes for
Hoffmanns room -

To get a hiring man reachable
Browns or Chief M^y police
or Riley might help get
a man -

Find out if ~~Geo Eastman~~
will give me some credit

Do we get credit from
Celluloid Co -

How about Coppl Credit
SB get it, also lumber

How about ~~Reynolds~~
Credit, -

Manager Hiring men.
General Manager - Leeming
Supt Maintenance - Nicolai
Secy & Treasurer
Credit Phillips
Traffic Rogers
Foreign Stevens
Head Accountant Nickerson
Manager Sales, Maxwell
" Demonstrators Riley
Advertising Man McChesney
Efficiency Engineer Mamber
Purchasing Sgt Chesire
Legal Dept ^{Holmes} Kanahan
Auditor Eckert
Vice Presdt Wilson
2nd Vice Charles Edgan
Business Phone Durand
Bates Burnham
Film Dept McChesney
Tool " Weber
Production Engr Wetzel
Primary Bat Hudson

Managers of Yard
 " Assoc Rec Hind
 " Cylinder Rec Nehr
 " Hip records Baldum
 " Screw Mach
 " Drill-Mill
 " Lathe-Grinding
 " Repeardiecers Simpson

.. Patent Japan Horn, Plating
 .. Punch rough grinding
 .. Sub & Mac Assembly
 .. Assemble Cableship
 .. Electric power boiler water, Nic
 .. Duplication, Wm. E. Werner, Hayes
 Engineering

Designing Engs. Constable

Machinery Lab. Luhr

Chief Draftsman Carson

Genl Eng'r Mason

Sig & Tool Stamps. Olsen

Experimenters

Moore, Dunwick, Christensen

Goff, Daly, Fredoff, Weaver

Boss Carpenter
 " Pipe fitter
 " Chief Engineer
 Boss Pattern Maker, Mudd.
 Photographer Luddon
 Chief Tester all products, Halpin
 Paymaster,

Driscoll-
 Burns -

Special racks to hold
Disc Cy - Big & Kineto
To wind up & test before
testing for noise in cabinets

Also part trucks - stock
trucks -

Racks for holding Micros,
along Cabinet assembling

Probable requirements for all
depts, 800 ft of two story
racks, 16 @ 20 high of boxes
& 14000 boxes,

Write for prices also how cheap
we can get boxes heavy tin or
beon japanned, or Micros -

Tell Cawm about allowance
for heavier Columns - 5

Go down with Christensen
(See Hudson & Miller about
occupying part bldg
for Mfg. cabinets -
Drum at a time -

Write some kind of letter of
introduction of an inquiry so
worded that it will induce
the recipient to hand to
Dean & Superintendent -

Not enough metal receipts

How about discussing
question about flat floors
Occupation noise receipts -

Nicolai - There is to be
no piping or electric wiring
in Big Bldg. except emergency
I will have everything laid
out - Also no excavations
running of wires on grounds
& from building to building
I am planning a septum

at Ottobrook Japan be
fused with Camille's box
or Carb. box (insitic fused) &
K. transformer.

Maintain arrangement remain
office 2 floors only

Read ampere required in
Disc Cyl - Lab, office & control
Split E & W out RR next to office
at part in, Edw. McEnte save wiring
- get long time

~~Get~~ Get prices for the new Motor
Generator - on this basis,
Put Scott on outside pole
wiring for whole plant.

Get Cost of the Xrd. Building -
plain - \$6,850

Some draftsman to calculate
the space & water supply for
Disc Cyl, Big Battery Kints so
Can get sizes & axes for all
details -

Box for tools beside the
tools - or if roomy put in storage
room - preferably best a
locker along tools holding
tools for 20 ft or more of the
row of tools - locked & key at
office

Must have a stringer in
fusion pots phenol plant
slip forming ~~phenol~~
bottom beams —

Also get out remnants of
phenol in salting out by
Kenzel agitation —

King's new section —
also surfacing with 503 bedded
after limit is reached

Speak to King about hinges
freezing for operation of its
bedded than adding steam —

Put ~~by~~ ~~in~~ on
Esters —

Little ~~in~~ on Esters also

Cost of Cyt-Disc alkali house

Lumber	1.138
Corrugated Iron	558
Labour	2694
Cement	956
Sundry Hardware etc	589
	<hr/>
	\$ 5,938

5 ft pipe sheathing
Pipe + fittings ~~not~~ outside
Costs 11.69
Lab cut lab postholes ~~and~~
\$ 16.69

lecture on the Recording & Reproduction
of Music by Phonographs
with Moving Pictures & Stereoscopic
Illustration and a programme
of the finest Music both singing
& Instrumental E. from
The New Edison Diamond Disc
Phonograph by Prof.
W E Smith. Admission
25 Cents.

~~Walter Walker~~
got from ~~Walter~~ all
names of all the
~~rough~~ ~~the~~ ~~very~~
papers get me names
Walter

Is Fox with Warrant on our
payroll yet.

8 1/2 Million gal Bengal
now purchased in 1 day period
overs in US in 1913

7 1/2 from overs 1 million from
tax.
Possible purch 25 million
Gals

W Mason in Met & Chem Engg
1915 - 13 - P 17014

gives details of his 500
Sulphuric acid plant
Cone from 65% to
95.25% H₂SO₄ 4 tons
daily cost plant
\$1400. Cost Concentrator
per ton \$159 per ton

P Radman, Godegard,
Sweden, Producing
Soluble Potash Salts
Eng pat 17,136, May
16 1914

1 pt by weight of Gypsum
" " " " " " " " " " " "
to which up to 3 parts
of ammonia may be
added, immersed 80%
thin iron mesh - heated
to 100° to 125° Centigrade
+ then leached or used
on soil - Will keep

Several Explosions Here &
its due to dry dust
Dust of all Explosions liable
Explosive should ground wet

Andine Oil + mix of
Pyro's Salts + powder of Tartar
Look out in Contracting
only pure Andine
Monophosphamine -

Ask Malloy what he
pays Moss -
also why not let Moss
go or reduced salary

Tell Cannon want drill
Sharpener in Drill Mill + better
Mill sharpener -
Jack Sharpener in Screw

State if we cant use ^{old} machines
for space pumps & take them in
trade

King = In case we use
sulphuric acid to
neutralize well there
be enough of it for
complete neutralization

The spirit was used some
time ago was this

Shake usen 110 Liters
Phenyl 177 Liters 93% H₂SO₄

This is 1 part Sulphuric to
1.85 pt. free H₂SO₄

We need 200 cc 78% H₂SO₄ = 350 gms
+ 500 Phenyl = 600 and 215 gms
+ 442 H₂SO₄ = the sum of
83 Baume 5 liters sulphuric
at 30 Baum of Phenyl

This is 1 pt Sulphuric to 16 of free
Sulphuric (100%)

King = GVM detests here
sulphuric only 15%
to dissolve Nickel -
also use it to dissolve
Iron for hydrogen

What will it cost for
materials for Myrburne
& also Antine

If 4c for 40 acid 18 H₂SO₄
+ 30 cents for 12 gal

1st test Chemical changed
Accuracy

80c	1.5%
80 to 100	40.2
100 to 120	27.2
120 to 140	15.2m
145 to 180	7
Residue	9
	100

300 gal
Daily
Price

Leasing

Dimond's says we can
could see in & could
have gone with four
are locked up by
the door

Lease 2 cars
for 1 day at \$30.
Erick should -

150-month

4 men 20¢
1 27¢ hour

Canadian

~~Mitsui - 2nd Cement bags -~~
8 15¢

~~Acetphenetidin
(phenacetin) 340 to 3,50 lb -~~

~~Myrbane 33 Cents~~

~~Sabal 110 @ 15 lb~~

~~Resorcin 125 lb~~

~~Salsolite 145 @ 150~~

Ted McQuibb to say to McC
when he has a spare and lot
of work to do now & then
like finding that he should
keep people permanently to
meet these occasions as
every morning there are lots
of bright young fellows
who want to see no
matter how short

Get address of Chem brothers.

in NY -

Diphenylamine

Heat $1\frac{1}{2}$ Mole Aniline with
one Mol of Aniline Hydrochloride
to 210° - 214° for 30 to 35 hours
in a long necked flask provided
with a Condensing tube. Or more
quickly by heating the same
mixture in a closed vessel
under a pressure of 4 or 5
atmospheres.

On treating product which is a
mix of Diphenylamine Hydroch
Aniline Hydrochl + coloring
Matters with hot hydrochloric
acid diluted to 20 or 30 times
its bulk with water.

The Diphenylamine hydrochl
is decomposed by water
; the base separated rises
to the surface as an oil.

which solidifies on cooling

It is purified by repeated
Crystallizations from Benzol
or Ether in which the coloring
matter is insoluble, & ~~is~~
finally by distillation
It forms a white substance

Boiling 310 Cent

Démarz Girard, a Chaptalaut

* Bull Soc Chim [2] VII 360

Diphenylamine by heating
Aniline to 225° with
dry phenylsulfonate of soda

Others say no diphenylamine is
formed with phenol-sulfonate Na
except a small quantity of
an Aniline Salt is present
in which case it is formed by
the action of the Aniline Salt
on the Aniline itself -

Another Process

Heating a mix of 1 part of
Aniline Hydrochloride 2 parts
Phenol 1 part fuming HCl to
250° - If no acid used the
reaction takes place at 300°
showing acid act. as etherifying agent

Another by passing Aniline
* + Bromobenzene through a
tube heated to low red heat
or by action of sodium on the
same mixture at ordinary
temperature

Another Heating Aniline
with Phenyliodide to 180°

* says formation of Diphenyl
on Bromobenzene + Aniline
occurs only when acid is
present or when aniline contains
an Aniline Salt,

Gravel & Lang conclude that Diphenylamine
not produced by substitution of a
phenolic residue for an atom of
Hydrogen in aniline

Mery & W. S. P. Desautels
Recht Chem Ges. Ber. V 233

Could D.P. is pure with exception
of traces of aniline & Couper
from diphenyl in large plates
MP 54°

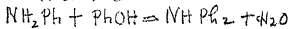
Mery & P. Muller Ber 19 2901
Long paper describes various methods
used & conditions required for
conversion of phenol into Aniline
& Diphenylamine, & fully describes
When phenol & Ammonium Zinc
Chloride or simply Ammonium
Chloride are heated to 300°

40 to 80% of the phenol is
converted to this Amine
The yield of which is independent
on an excess of Ammonium
salt. The temperature & the
time of heating, same change
Can also be effected with Zinc
Oxide or Magnesia & Ammonium Chloride
The presence of an excess of the
latter preventing the formation
of Diphenylamine
Experiments in Alcohol was
not satisfactory

Diphenylamine formed together
with Cyanic acid (Carbonyl)
by Dry distillation of unsymmetrical
Diphenylcarbamate -
& in a like manner by
distillation of Triphenylcarbamate

Mex 4 Weith Box 13 1298-1302-

Diphenylamine is formed by heating Aniline Zinc Chloride with
Sulfur at 250



Reichers Industrial Chem

(No down) says -

Diphenylamine obtained by heating Aniline with Aniline Salt (Anilinkupflocksalz) to 210-240° in autoclaves

product treated with HCl & then with excess of water

so that the Diphenylamine Hydrochloride (which formed) is decomposed by the water & the free base swims on the surface & when it rapidly solidifies

It is purified by washing & fractional distillation
Colorless MP 54-BP 310° C

Crude product should be nearly colorless, not greeny, has no disagreeable smell. Melt at perfect temp & should not rapidly turn brown in the air.

It is tested for Aniline by shaking the yellow solid substance with a solution of bleaching powder when it should not turn violet.

Aniline -

Impure (now used) acid neutralized by lime & Aniline distilled off by high pressure steam to purify residual in vacuum

Anilin - Hydroxylamine reduced
Electrically - reduced by metallic
salt which are at same time
deposited on the Cathode
by using Copper salt
Yield of 80-90% or more are
obtained a clean removal
of iron particles

Stueber
Anilin Hydroxylamine made
by reducing Anilin at 100°
with HCl (free of Cl₂) after standing
a few days the salt separates
out, it is then washed
more than 4 times in a centrifuge
& dried at 50°

Stueber

Phenylic acid
from Naphthalene Sulfonic
acid fused with KOH, or
such oxidizing agents as
Fe₂O₃, CuO, MnO₂, etc
The phenolic is separated from
the Phenylic by distillation
Many German patents
Reichert

Salicylic acid German
Pat 133500, The (Oxy) Res
fused Benz Sulfonic acids
& oxidized & is converted
into Salicylate Na by passing
Current of CO₂ Water powder
from which it is freed in
usual way
The purest Salt Can only be
made from Diphenolic
Chenol.

Get price sheet from Chem Co
1 3 5 & 10 lb Cans
Carbolic soap

Get all the Catalogues I
got for small Appliances
Machines

Get Catalogues for Carburetors

Look at gas house see
if suitable for Amine -
See Glen Ridge of course -

Cement Co build new Chem
looks appropriate

Mary says Textile trade uses
Amine oil for dye of Toluidine

Dyes that sell well & big
demand given me by
A L Muffaly Salesman
National Amine & Chem Co.
100 lb 50 or 100

Price
Agalwan

180 lb Direct Black 50 c
only 1/2 is real dye

17 c Benzopurine 60 c

35 { Sky Blue 6 B
Diamond Sky Blue FF } 90 c
Chicago Blue

25 - Chryso-phosine GE 65 @ 70

25 Congo Red 60

Acid Black
Metaline Yellow

Get list Wholesale Drug
& Chemical Houses dealing
with local Druggist -

Get the Book published
by Druggist Association giving
list Chemical Houses
I sent a get it months
ago - I get Directory of
Druggist in U.S.

Find out from Orndorff
whether the design worked
out best with or with
work's patent all -

Do we suspect worms
on turntable + gear
for hardware + how -

Moore July 4/4 501
in blank
ditts 4 1/2 to 1
ditts 4 1/2 to 1/2 free pulp

Try Muzzes get 1/2 doz
& find out get aprones
& try if men at company
will use -

Complete details of wife of
Salicylic Acetylsulphuric + Salol
is given in Chemical Druggist
Vol 65 313-p 1914 - England I think

Late Danish pat C Lund-Lawrence
prevents static charge in Thermal Containment
at Cartridge or a chamber is
disposed in the mouth of the
supply pipe + provided with a wire
gauge connected by a wire to the
Earth

Get Cost our ice plant,
 also get from King data
 so can determine price -
 After that send for Catalogues

Ask Murray to find out
 whether he can get ^{price} ~~substance~~
 with gas from the vectors
 or with coal -

Ask Murray if he can
 get ~~substance~~ in bulk
 - Liquid from Rintsch
 acts same way.

* @ 3300
 550 gal -

5000
 5500

Phenol Sales

		56c
US Govt	Daily	640 lbs
F Lutzien		100 100-110
Morlokants		100 55
Heyden	182 Gal	100 85-5
Baker cancelled		150 55
over wants		2200 ^{over} 55c

Estimated Benzol		329
Cambria	1000 gal - 29	
Sydney	800 24	
Woodward	600 55	
	<u>2400</u>	

25000 from UGI.
 Possibly 400 to 600 at
 50 Cents from Oldney Extra

Murray Chem Co get
 700 from King Catering Co -

UGI last 7 weeks,

Possible 400 @ 600 Sydney
 50 Cents

(115)

Look over gas house ~~franchise~~
for amblin - ~~Dr. W. H. R.~~

Please order for Amblin &
Mylbane ~~to the right off~~

Carbolic - We use 110 gal. Benzol
& 170 lbs. 98% acid - 296 to 1
Requires 8 hours to Sulfonate
Can make 3 sulfonations in 24
hours

To fuse 7 to 8 hours Can make 3
fusions in 24 hours.

Use 900 lbs. NaSulfon with 720 lbs.
Caustic produces 420 lbs. Phenol.
1.71 Caustic 1 phenol

Neutralize & separating phenol in
tank takes 8 hours product
about 400 lbs.

Distill 550 lbs in 12 hours pure.
change is 650 lbs. end of phenol

Takes 2 hours for lime to settle
after treatment with Na_2CO_3 .

Sulfonating Mix 73.5% Sulfuric 26.5 Benz

Wilson - ~~letting~~ ~~let~~ ~~let~~ ~~let~~ ~~let~~
to all jobs about
Sufficiency ~~letting~~ ~~letting~~
a letter to all dealers
about ~~prompt~~ ~~prompt~~ ~~prompt~~
& ~~let~~ ~~let~~ ~~let~~ ~~let~~ ~~let~~

See Huffman ~~working~~
records

One by ~~let~~ ~~let~~ ~~let~~
Big Mac

They get 4 men for 30 days
to catch sand dollars from
to Recite - ~~at least~~ ~~from~~
give R. ~~any~~ of
the kids.

125 Disc-Rocks -
in saw tooth

Chemist for Gossely

JVM with 1742
gal hour

Temp 57.2 Fahr

Total Sol. Co	44.8	in 10000.	
Loss in water	17.92		
Sol.	2.42		Cl 2.13
Feval	50		
CaO	8.50		
mo 503	2.16		

Repaired Records

30 days

Class 13	Class C
Expected 240	489
Grd Van 1	8
Scatched 0	19
Pm Kafe 0	3
Yarnsh Spots 0	7
Poor Print 0	1
Repaired 1	Repaired 38
OK 239	OK 451

March 18

Benzol

Onhand	8000 gal
Due from Dupont	3241
UGI	24100
	35341
UGI way out get.	8500
	26841

Organic Carbonic
all up onto ~~X~~

Watch ask Haynes what
the yield of Picric should
be from pounds of Carbonic
? near actual yield 1.50 lbs
per lb of Picric

Ask Wilson if reason
that Comb. losses sell
Vic is they get off 70
9102 only ~~that~~

Lough Keith Law Co
about Sulphur Tank
Cans ~~X~~

Ask Badger for Blue present
of still - ~~X~~

Picric Yield 150 P per lb ~~Carbonic~~
100 lbs Phenol
450 lbs 70% nitric
gives 150 lbs Picric
300 lbs 98% acid

155 cents lb of Picric for
Nitric - 766 for Carbonic
Dead Cost no Labor
666 Cents lbs -

Rough Estimate phenol plant 1st one

3 Subcooling Potts in place	3600
6 Storage Tanks	600
Foundation for 6 Tanks	500
2 Salting Tanks	1800
Ice Mac-tanks-Motor	4100
Ice Can 250 10" 36"x36" Cap	2500
3 Centrifugals + Motors	1700
Acid Tank + Pump	500
Magnesia Tank	1000
3 " Settling Tanks	700
Acid Tank + Pump	500
Truck + ...	100
Fluorine 380, 2.22	1050
Brickwork	2500
Cover, platform, etc	800
Stirrers	2000
3 Dissolving Tanks	900
3 Filter press + pumps	2100
3 Neutralizing Tanks	3000
2 Phenol Still	7200
2 pumps	500

Bengal furnace + Pump -	2500
Buildings	10000
Loco boiler + House	2500
6 Motors	1500
3 Crystallizing Tanks -	750
Piping	3500

46500 additional

49455

McCherny ~~Work~~ 4 days
week will cut expenses I

Wilson = they must see
Plimpton's ~~have~~ him
get back to 140 Cost

Literary Digest, ~~Commit~~ for
amount -

Need ~~edit~~ teleph Keith
\$2504 Cost -

The 53 ft ~~bead~~ day
Costs \$25 per foot
not including floor
as that was in

frames & benches \$ 218.50
Hardware 160 25-
Lumber 548 97
Galv Front Corners 782 86
Labor 844 77-
Secondary material 735 65-

\$ 3,291.02

131 ft long

King ~~day~~ shall we
take care of unperfected
Keyol

~~Keyol~~

March 24, (Seeming says
this is exact Phenol on hand) 116780%

Benzol on hand	4464	Gd
Due from Dupont	2400	"
Due from UGI	15600	"
	<u>22464</u>	

Kammerhoff using during
last 2 weeks 1050 gals
daily

In 8 days 8400 gals
weighing 60480 lbs

Obtained 26402 lbs phenol
@ 1.85 later for 16 days
2.29 lbs Benzol per lb Phenol
instead of 1.44 as reported,

from Mch 16 to 23 delivered
to Mfg Dept 28019 lbs.

Should make 23816 lbs Resin

Should make 2977 lbs
Resin daily -

1
Kammerhoff used daily
Benzol used & phenol
produced - 11 off-line
Resin in stock & daily
produced & distilled
Carbolic returned
Stock of returned Carbolic
Kammerhoff has on hand

K Has on hand 16988 lbs
23rd Mch - 4 several hundred
in BNa salt - also received
10000 lbs -

1 gal drip oil for
Every 94000 Cubic ft
gas -

Harry Miller gives up level

~~Cambric plant,
also lost of details~~

Dry Carbon deposit

~~Platinum or asbestos
products~~

~~Mosses = thin or hard
thin & elect. cellulose
discs~~

Direct Cotton black
not full strength let
down with NaCl to
acid carbon etc it -
50° to 60° C -

Ammonia or nique work
absorbed by gypsum

Neutralized superphosphate do
Na K phosphates OK

~~Rammlaff Na Sulphite
Cryolite some~~

~~Dimension steel decking
address C.A. Richards
Care Borring & Co
17 Battery Place NY
"Borring"~~

~~Letter form for Borring
screw March Dept etc -~~



~~etc -~~

~~Set Myrham plate on spring
water from bottom
Thinks only 1 m. long 6 p. 1/2 -~~

~~Get the Catalogue on moving
Reynolds trucks with C.D.~~

~~Halpin Resum test
testing Blue
Amber etc -~~

~~Santa Fe Wash Co
Jopoka Kansas~~

Mullaly —

~~6 Months Dublin 70
9 " " 65
at 1 year 58~~

~~Tom Ice plant will Cool
20 lbs water 10 days
in one minute.~~

~~Ostrander Works
Ready up~~

~~Tiles for digesting
tuning - used in
paper mills -~~

~~Logan~~

~~63 Cents for~~

~~Mitraling 30000 plant~~

~~Niels C 62 1/2 cents
for mitraling -~~

~~Scott about Lab
windows -~~

~~Sheathy deck inside
Benching at Berg
works -~~

~~Lube for engines~~

~~Duden's own pulling
on silos direct -~~ 1000

Logan man says
1 lb piano began
3.3 lbs 42° nitric

Guardami Valzer
Cantabile - by Bori
starts or very disagreeable!

Henry Snyder M.D.
223 Roebling St
Brooklyn

Write Complaining letter
I'd been paid it cost
Expense by Express & I
would investigate -

~~Halpin Pat was inspecting
Disc & Cy in Record shop
Sept -~~

~~Bachman & Henry Lamp
neglected - Chief Rack
Rec'd Elje~~

April 16 -

11000 lbs Resin -
~~3452~~
17437
1050 - qt 850 - Recovered 60 lbs -
or 1000 lbs actual 850 Resin -

Mason's Washing of 90%

800 gal - puts in $\frac{1}{3}$ of the #2 soap
runs 10 min - another $\frac{1}{3}$ runs
for $\frac{1}{2}$ hour then final $\frac{1}{3}$ &
runs for 15-20 min -

Let it settle for $\frac{1}{2}$ hour
drains off for acid & stops
draining soon as receipt appears
Then additional using any water
to wash on account of making
a bad emulsion.

Now takes a 10% soap of NaOH,
& puts in an amount equal
to 10% of the #2 soap.
Run $\frac{1}{2}$ hour, settle some hour
Drain off water - then
wash with water.
It makes some emulsion

Settle $\frac{1}{2}$ hour - then run
into tank - its ready to
distill to pure

(158)

His tank on his 90% still
holds 3000 gals it
will take $\frac{1}{2}$ hr
days to fill it -

~~listen to late
advice~~

~~Walter's advice
not to wash~~

We use 320 gal Van Lark
for 10000 gal ^{granular} ~~solid~~ _{dry} ~~dry~~

Mason if you should test
your wash out for solvent ^{also} ~~temp~~ _{temp}

Reley - Send some key men to
Provt Women in - to work for
+ smaller New England
Working from Britain -

Send Cambridge ~~to~~ ~~and~~
on account -

See on board of Dover
Kept to Lakes -

Mason superficially got
heating works out
Rapidly Complete + spare
heater should be on hand
to switch in + out
without disturbing system

Don't don't want differential
Cooling like a still bit
want ~~cooling~~ temp from bottom
to top the legs no still -

36 min 1 / 400 ~~000~~
 15 2
 9 4 14 000
 4.5 8 132000
 2.25 16

4 1/2 min 8 feet

4.5 | 600 | 133
 45
 135
 170

133
 200

169 ft/min
 81 Min/hg

13 | 130 | 10
 16 | 130 | 41
 20
 2

13 Cents 1 lb but
 13-
 13c

3

Notebook Series -- Pocket Notebooks
Notebook, PN-15-06-08

The dated entries in this pocket notebook cover the period May-July 1915. The book was used by Edison to record ideas about business matters, experiments to be tried, and other tasks to be performed. Some of the entries have been crossed out. Others appear to be repeat entries from earlier books. Included are experimental notes pertaining to disc records, new phonograph horns, and battery cell tests, as well as numerous chemical experiments to be tried. There are references to Edison's new benzol plants at the works of the Cambria Steel Co., in Johnstown, Pennsylvania, and the Woodward Iron Co., in Woodward, Alabama, as well monthly production figures for the Woodward plant. Also included are references to the rebuilding of the Edison Phonograph Works after the fire of December 1914. In addition, there are sales numbers for Edison phonographs and records and for the Telescribe, a combination of the telephone and dictating phonograph; notes on voice trials for recording artists; and comments by Edison about the lack of opera and classical recordings in his company's catalog.

Among the numerous Edison employees mentioned in the book are H. H. Meno Kammerhoff, supervisor of operations at Edison's new chemical plants in Silver Lake, New Jersey; chemists Victor L. King and Ludwig F. (Louis) Ott; Harry T. Leeming, head of the Purchasing Dept.; Charles W. Luhr, superintendent of the West Orange laboratory; engineer William H. Mason, who supervised the installation of the Johnstown and Woodward plants; and John V. Miller, Edison's brother-in-law and manager of the Edison Chemical Works at Silver Lake. Chemical manufacturers and suppliers mentioned by Edison include Butterworth-Judson Co., Du Pont de Nemours, General Chemical Co., Heyden Chemical Works, Merck & Co., Mitsui & Co., and Monsanto Chemical Works. The pages are unnumbered. Approximately 150 pages have been used.

PN-(15)-06-08

2996

Dover

HOZ-

Should be

6ft 9-

$\frac{6.91}{28}$
28
28

$$\begin{array}{r}
 7 \\
 17 \\
 \hline
 119
 \end{array}$$

$$\begin{array}{r}
 541 \\
 119 \\
 \hline
 660
 \end{array}$$

.4 1/2

$$\begin{array}{r}
 135 \left(\begin{array}{l} 730 \\ 675 \\ 550 \\ 540 \\ 1450 \end{array} \right) \begin{array}{l} 5 \\ 19 \end{array} \\
 \hline
 700 \\
 119 \\
 \hline
 681
 \end{array}$$

$$\begin{array}{r}
 914 \\
 50 \\
 \hline
 964 \text{ } 6000 \\
 \hline
 7 \sqrt{4000} \\
 3 \overline{) 571} \\
 \hline
 283
 \end{array}$$

$$\begin{array}{r}
 100000 \\
 6000 \\
 \hline
 40000 \\
 36000 \\
 \hline
 40000
 \end{array}$$

$$\begin{array}{r}
 250 \\
 500 \\
 125 \\
 24 \\
 15 \\
 \hline
 914 \\
 110 \\
 1
 \end{array}$$

11000-

12

Mich Alkali Co Wyandotte 30 Cc Ke
Ovens use for fuel -

Dip a Condensate Masher in very
thin Varnish (Requise) Thinned very
much with Alcohol Dry in
then granite & plate -

What has been done with old
Adams Ex returned batteries

Get Blue Junta.

It might pay get for window
shed of Redlers large lithos
of Coy Lithos & Compars

Riley - Reate Niagara Fall
Its fall Victor we have no
dealer after receiving know
one of our men get a dealer

CSJ

Hayes why not put out
Opera Special - Clem De Vera
Etc -

We need an automatic
device to put writing in
Edge letters on Disc -
Simpson

Conatable - Curled Horn



When steel Cup Studio done
Play Espoir-Melodie
Beautiful badly done by
Cronkite. - Who is composer

Nitrous Acid Converts Aniline into
Phenol -
Use Aniline Hydrochloride &
Silver Nitrate

Bernard Anderson of Glasgow
Scotland Brit Pat 23605
Oct 18 1913 Use claim to
settle dust by electrolyzing
Nozzle which is a fine jet the
Microscopic bubbles attract the
dust & coalesce.

Harp sounds sweet because
it has no slap like a Piano
to cut sound short. if we put
a deaf pat. on Slap hammer
it would go slower & swell
would carry over longer &
gradually die out & sweeten
the sounds -

Get proportion of sales in selected
by China to total sales in US & C

Went runs on 368 E its
short tube soaked in Conc LiOH
24 hours + then put in 21 KOH.
only - No LiOH.
also 357 - 82% at high rate.

At Amfine plant Mfr
acetamide -

Have boy enter details of
Cost Mfr phenol from last
book to this -

Holegerber. 1914 French Pat.
460 527.

Oxides Ni or Co or Cu deposited
on Pumice heats pass Vapor of
Hydrocarbon gives large yield
Tenzel - J 1914 p 17

Put up 4A4 15% NaOH for long
^{test}
Diphenylamine Blue

Action of Oxalic acid on above
at 120 @ 130 Cent, its Spirit
Soluble - Sulphonate it or it
makes Alkali Blue or
Nicholson's Blue.

Charles say Tech man
Employed Abbotson Construction Co
Advancing rapidly gets 50 to 75
a week is good at setting or Engineering

By adding Zinc chloride the
making of Acetanilid is shortened
several hours = H₂O at 75 grms
pure Aniline with 3 to 4 grms
of Zinc Chloride + 75 grms Glacial
Acetic in flask with reflux tube
for 3 hours pour in water, wash
crystals with cold water, recryst from
boiling water its economy to use pure
Aniline to get rid of the color

Get 10 Tom wear springs wash
from Amers with track

Vic L & Healy 1914

Sold retail \$1.82 of machine
per record sold - based on
850 per record average

If average is \$60 per machine
sold, then 33 records were
sold in 1914 for each
Machine sold involving
trade from all their profit
trade.

Based on 35,000 records daily
Vic makes Daily -
+ \$1.82 per machine for record sold

They sell to jobbers \$800,000 worth

4462,000 records

1/2,462,000

Gross receipts - 1914

Million Month at out

If 10 sold with each machine + 5 every year
after of records it account for sale of records
1904 to 1914 - 6424

Extra line of shafting put up in
old shop from reclaimed shafting
So can move in sections

Want a hiring Man -

Genl Manager Asst.

Supt Maintenance

Secy Treas

Credit

Traffic

Foreign

Head Accountant

Manager Sales

" Demonstrators

Advertising Man

Efficiency Engr

Purchasing

Legal Dept

auditor

Vice Presdt

Leeming

Nicolat

Phillips

Rogers

Stevens

Nickerson

Riley

Mechesney

Mansburt

Cheshire

Wilson

2nd Vice Presdt	Charles
Business Phone	Dwight
Bales	Burnham
Film Dept	McChesney
Tool -	Wetzel
Production Engr	Witzel
Primary Bally	Hudson
Plant Manager	
Disc Records	Hind
Cupfunder	Nshr
Shipping Records	Baldwin
Screw Mac	
Lathe grinding	
Drill Mill	
Reproducers	Simpkins
Polish - Japan Horn Plating	
Assemble Cabinetship	
Assembling Sub + Mach	
Punch rough grind + blackent	
Electric Power Boiler Water	Maddis
Duplicators	Werner
Engineering Drawing	Conville
Manager Lab	Luhr

Chief Draughtsman	Caum
General Engineer	Wesson
Job + Tool Designer	Glenn
Experimental	
Dunwiddie Moore	Christensen
Goff, Dally Fred	OT Warrneslet
Chemist	King
Press Carpenter	Drewcath
Pipe fitter	Burns
Chief Engineer	
Boas Pathe, Necker	Mudd
Phelographers	Ludder
Chief Teller	Halpin
Packmaster	
Men Hires -	
General Efficiency Engr + Cost Auditor	

for obtaining spare parts of
old machines to supply
our old trade when
not made in old machines
take them apart & use
parts — ?

In Assembly room special racks
to hold Disc & Cy. Taps & Reamers
to wind up a rim than best
for noise in cabinets in bath
before going to storage room

Determine size of boxes to
hold parts for 2 weeks supply

Box for tools adjacent to Spindle
Machine, locked, possibly kept
in part room =

Present model of Shelving
determine amount see given

One person on floor sharpens
all tools, drills, men don't

late Danish Patent
Providing Static Electrocharge in Bengal drums
A cartridge or a chamber is
disposed in the mouth of the
supply pipe & provided with
a wire gauge connected by a
wire to Earth -

Complete details in
Gallego, Acetylenes & Acetal
given in Chemist & Druggist
Vol 85 313 p 1914 -
English & Clarke

Takes 2 hours for Xylene to
settle after Na_2CO_3 used
Sulfonating Mix
73.5 percent Sulfuric
26.5 " Bengal -

←
Old plant Sulfonation 8 hours
3 Sulfonations 2 1/2 hours
3 Fenoxes " "
900 lbs Bengal with 720 lbs Caustic
produces 420 lbs Phenol -
171 Caustic to 1 Phenol -
Neutralizing 8 hours 400 lbs
Distill 550 lbs 12 hours

Mason washes his 90% thru

800 gal puts in $\frac{1}{3}$ of 42504 runs
10 min another $\frac{1}{3}$ runs $\frac{1}{2}$ hour,
final $\frac{1}{3}$ runs 15 @ 20 min
let it settle for $\frac{1}{2}$ hour - drains
off tar acid, stops drawing as
soon as Benzol appears

Then without using any water
which makes bad emulsion
takes 10% solution of NaOH,
4 parts in an amount of this
equal to 10% of the Benzol
Runs $\frac{1}{2}$ hour, drains 5 or 6
water off - then washes with
water, this makes some emulsion
settles $\frac{1}{2}$ hour, then runs it
in the tank ready to distil
to pure.

His 90% still tank holds
3000 gals -

Showing the ~~gas~~ ~~valves~~

Order Extra valves for
Kammerhoff to to save
phenol in neutralizing
solution

We should put up 200 more
plating tanks to increase
our capabilities for making
150 working hours per day
for next winter long

Joseph Kupperman
Managing Care

Mic Check Gas papers
Set

Set at 2 cells 2 with
for both

Hereafter I pay on all
cylinders ~~seconds~~

Mitchell - S Bat Research
Take Ni from cell no
plating & put in cell with
New Lamps or Old ones in
New Cell New Heaters &
& Amis - Save old cans
& parts

Monahan - See his tool
for taking Nickel - Show out
oil cells & take to Bob
about Regeneration 300
old cells saving everything
to get at Costs & Reg
of Miller up so we can
put it in Reg practice -
foiled along enough with

Extra space for sulphur parts



Box for parts set in to give
right number of parts -
Litho make sample -

Have the man who is getting
parts, to get cast raw
stock on standard disc
1 + 2 spring + Amberalax
before machining + get
waste - also Kinto, Pig + Bones

Ask Kammishoff
if he has a leg rod
jacket on his reflex
at Sulphur tank
2

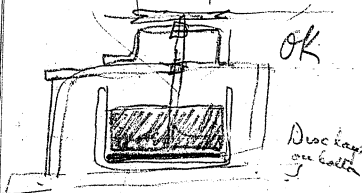
Sulphonate some of the light
+ some of the heavy Sulphur
Naphtal with a sulphur
purification will occur +
Condense by $6/4$ To Reim -

Batty Co Prep roll for Phos

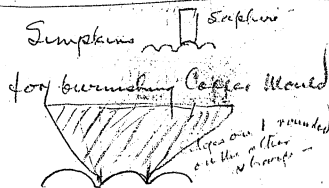
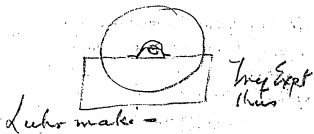
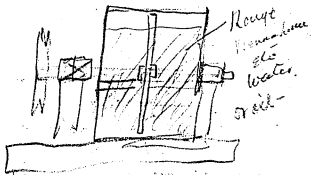
63 Clerks	40
40 foreman	25
73 Insulators	40
22 Muscellans	15
125 Toolmakers	60
25 Jabbing	
- Etc Etc	

384 Non
885 Procherson

Get the rate straw oil well
 pass through 80 mesh
 Screen. Use cloth as
 Metal may cut up -



Disc mould



Grimes about Echoes
 Raise wet get top 60 -
 Sulfonate & use some of the
 highest BP solvent naphthalene
 see if Condensate -

Try Myrbane, Aniline oil,
Monobromonaphthalen, Monochlorobenzol,
Benzene sulfonic acid all
with 40% formaldehyde
+ Reflex tube on steam
plate. Kummerson in alcohol
with 6/4 thick on plate.

Try in blank the highest
Boiling point Tar oil
500 c. Some get in
alcohol distilled from
Vac dryer - it must be
Sol in alcohol.

Mason to send me box
of slide tar want to see
if any Kummerson
Tr

Ask B. Sawell if he wants to
trade 1000 gms Benzol pure
for 10000 lbs. Carablic pure for
Nitroting.

Lesson - if compound, Green
ordered for the second time
point -

Loan King \$200. *

Copper plate brush
pat iron ring photo Cu

Want daily sales B. 13
4 letters -

Also family battery -
Bates

Conclusive - ~~which is our~~
designer ~~of you~~ - make
list of things you are
working on

Find out who handles our
trucking ~~or give a lecture~~

Get Song "I will love you if
you'll let me"

Take cop with hand &
Dutton publishing in
stock 2000 each in
scholarship & SAC memo
to be kept in stock -
get list of record time on
stock & also make out a
schedule to start 10 new again

~~Spaulding~~ Arch Mann
by ~~London~~ to be ~~filed~~
by ~~Schubert~~,

Report sent us some
wood pulp dry some
time ago it was longer
fibre and not much
coarser than ~~Sucoda~~
I think it would be
fine - as too short or fine
fibre ~~not good~~

2 Cells of 4 only
tubes stated - why they
else not stated
Curse it -

2 $\frac{1}{2}$ c lb Sulphate Soda

Eriolaucins = 1063.

Fred Ott: ~~Buton~~ hydraulic
of ~~Campor~~ - ~~W.C.P.~~
Cummatic acid polymerized
Naphthalene

King why, can't the ~~Ammonium~~
of ~~Nitrate~~ over lined + heat to
578 + ~~Wm.~~ CO₂ passed then
phenol got out by Benzol.
possibly little ~~acid~~ ~~rem~~ ~~is~~
22000

~~McCheamy~~ ~~reworked~~
Take precipitate on face

Water Record found
AozM Controls
Supra

~~Helen Clark~~ work her
so she make 50 100 gk.

~~Corvada~~ ~~center~~
on ~~speed~~ ~~req~~ ~~1000~~

Romanee in ~~Academy~~
Violin solo with piano accom.

~~Hoffman~~ ~~reworked~~ ~~core~~
~~phenol~~

2. ~~Low cost for Caum~~

~~Contract for 1910 on
Cast iron~~

~~See Shreve's process
to mouth of Adit -~~

~~Stone about Vase Drip
to mouth of Adit~~

~~German Silver~~

~~Mould~~

~~powder press mould~~

~~Traces of press mould~~

~~Ovens - get heat
of other things -~~

~~Act of Bachman shipped
the Copper~~

~~Mason found out our
Costs of Water & Steam~~

~~Harry - don't pay (minutes
or 100.00)~~

Pure Sulfate Copper

~~Copper and Sulfate~~

~~Aluminum Magnesium~~

~~Says it is not~~

Arrange that when a
Recital man gives
the name of a dealer

he report it to dealer
on post card & state
where recital was
don't ask for name or address
privacy volunteers -
2

Kennedy's Edison shop
down town has a violinist
who plays at recitals
try to get him try first
Mendel behind sheet
pressed low & play
Ave Maria -

Also one of our singers
sing a song but utter
no sound

6000 lbs Phenol Daily

750 lbs Magnesium Chloride -
1380 lbs 66° B Sulfuric
9600 20% Oleum

For Aniline Oil reduction
3000 lbs day

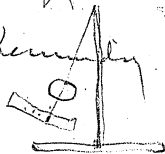
450 lb HCl 40%
565 " 32%
645 " 25%

Cost May 17/48

Aniline 31814
Phenol 45490
Woodward 48313.

~~German Silver Plates~~

Remedy



test even speed

Wantent ~~Want~~ get out
statement of ~~shows~~
with a 14 ~~bars~~
to show ~~bars~~ - it
good ~~like~~ now to know
just ~~orders~~ in

1 = Benzol + Formic acid
or 4 Peroxi de Lead

2 " chl Zn

5 = " MnO₂

3 " CO₂O₃

Send \$50 to Long Island
Hospital

Hudson - Common Speller
20 cents this would
be 24c for Bentha -

Waller - Could you get some
kind of war work from Swab

2413

Int Chem Literature
1900 p 982

~~Nitrobenzene Petroleum~~

~~Stock for Xylol for
Disc No. increased
plant~~

~~Removal of colic
he ordered the absorption
so phenol from
Liquor -~~

~~Try P60₂ Formaldehyde
& Salicylic Nap in
Reflex -~~

~~Dec of Benzol dissolved
the Vulcanized Rubber -~~

~~Try the sheet Rub with
mix of Salicylic Nap &
CS₂~~

~~1000 # functional
Sal Nap get %
Xylol -~~

~~1250 # 10 sacks
box -~~

~~Centrifugal
Low Heat,~~

Ask Parker ~~Chomales~~
Big ~~Centrifuges~~ -

Johnston Benzol
for Monsanto -
do Wisconsin ~~Woods~~

Time each operation
Disc Cy 10.3 -

We use 23 $\frac{1}{2}$ lbs/day
Para 12800 ~~blanks~~ -

1 gram ~~Paper~~ per blank
13.2 gram ~~of~~ of the ~~Carbons~~
365 ~~per~~ per ~~hour~~

Ask King amount Soda Ash
required Regularly

~~Common~~ Bronze Speakers

$\frac{1}{2}$ 9/32 ~~Drill~~

~~Pulling Motor~~

Write Bacon & see if
he can find out how
much ~~CO~~ ~~Gas~~ & ~~St~~ ~~will~~
we are using Daily

Resin in blank: 6.85 grams 4 to 1

114.5 grams phenol to
Complete second -
20% add 4 to 1 -

69 grams phenol to blank
45 1/2 " " Venetian

Pretty dry filler press
Lime. Weight 131 gram
acquires 160 cc of
water + good stirring
to get a mush that
will flow along a
2 ft trough with a
little assistance -

Put it in filler & left all night
found 26 gphs come thru

Wet felt up file found
Elec if change for
larger machine -

Put Analyze plant over
P Serv. Elec

Dry glue 6/4 + Para for blank

Dry Casem + 6/4 + Para. "
using 70% methyl alcohol to make
Casem sol. + comb. -

Shellac + force phenol with
+ without 6/4 + Para.

Dry Sandarach

" Cheap Havers
Methyl Resin - Dammar

Get the ~~with~~ 50 Coppers
Tanks ~~Caribbean~~

Hurry up office -

Get ~~Opdette~~ down to works

Drawings for bin for iron bonny

Place to store and handle
Benzol drums

Schedule for acid & Benzol
for Amiline Plant ~~Opdette~~
attend & at return drums &
cars

Del's ~~Caribbean~~ Plant

Schedule for ~~shipment~~
Amiline for next 2 weeks

~~Caribbean~~ Hurry drawings
for Slats for ~~shipment~~
Jehud ~~work~~ & ~~Caribbean~~
~~boards~~ Boards 7/8 or 3/4

Amiline salt. Shed also. Vats
& other necessary things

Supply ~~shed~~ for Amiline salt

~~Paraphenylen~~ Shed
why don't I go ahead
with office bldg

Stake out a start
Kammichoff's Sawer
bldg & arrange things

Arrange Kammichoff
supply Benzol for Amiline

Miller find ~~with~~ who swashes
our drums

Fix place to load drums
so don't break them -


Miller how about Governor
on 100 KWH ~~Engine~~ -

See if steam pipe coming
to Apurimac ~~Compressor~~
drums okay from Engine
(10) Slight strain

Listen to Voice ~~Trials~~

See Simpson ~~in~~ Simpson
concluding ~~of~~

We are having a ~~load~~ because
steam blows over ~~in~~ ~~back~~
Enough to ~~run~~ ~~see~~
H of ~~run~~


Telegraph ~~Mason~~ pick ~~exhibitor~~ so
One kind ~~accept~~ in ~~books~~
as before

Anilin Hydrochloride -
Saturate Anilin at 100 Cent with
HCl free of Chlorine - after standing
few days Salt ~~is~~ out, its then freed
from Moller liquor in centrifuge
& dried at 50 Cent = Residue

Zinc Chloride reduced time of acetylation
accumulated 3 hours 75 Anilin
75 acetic or 304 gm ZnCl₂

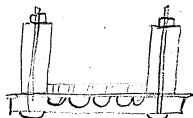
While putting in acid in salt solution
Tanks should be water cooled, Phenol
Washes Benz Na in centrifuge
with Cone Washers -
If want CP Benz Na dissolves in
H₂O Absolute Alcohol, the HCl
don't dissolve -

Try Hypochlorite Na on Benzoin Sulfonamide
or Benzoin Na on Hypochlorite lime
it might make phenol

1 lb Phenol requires 4 lbs Limestone CaCO₃

Use some flux in the fuel
- reacting to flux, delta
glycerine -

Make another experiment with 121 gms
lime + 160 cc water → 6 min
Then add water vol of gas
Then clean if not deep brown
4 min then pack down



600 cross
not longitudinal

Oil

	May	June	July	Aug
Miller Rubber Co Raw	820	120	120	120
Daquet	✓ 693	693	693	277
4 Finck Co	✓ 154	154	154	
	✓	385	385	385
Hollander Salt 121 all 174	154			
Waldrich Bleaching Raw	134	134	134	134
Runnymede Mill	✓ 77	77	77	77
Southwick Mill	✓ 77	77	77	77
Mitsui	✓ 100	100	100	100
Morocco Mfg Co	✓ 100	100	100	100
Seydel	✓ 2	231	231	231
R Meyer 1422 all lime		69		
Pa Knitting			35	35
Daquet		385	385	385

Salt

American Paint Co	Salt	166	166	166
Hollander	Salt	121		

Daquet himself	2 Ton		2 1/2	
Finck Co 2 Tons May	7 Ton	13 1/2	10 Ton	5 Ton
Finck Co 60 "	6 1/2		6 1/2	
Morocco complete			5 Ton	5 Ton
Morocco complete	1 drum	200		

May 1614 daily
June ~~2294~~
July 2268 3908
Aug 2652

Trades with Hoffmann

1 st	^{9^{am}} 3340	Carbolic 4425 Pct
2	12870	21012 paid
3	15000 about	20000
4-	25000 -	

Opdyke - ~~Amherst~~
438000 limit 5
pay explained -

See what's ~~Mattes~~ Amherst Pat

Amherst Ventilation -

Bigger pipe Mybram part,

Mattes with furnace part
of gas -

Mattes ~~of~~ wiring
office

King - Pelosovich

How feel Perry G. 3
in same month

King not inuff Sae
and in Nitro
and

Henry Order Motors Rotators
+ Everything for the 2
Extra Reservoirs 11/1/1900
Pats -

Also another Machine
Redesign + Extra Tanks,

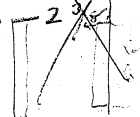
Order smaller Iron (ss)
for Extra part (Anilin Reser)

Extra shaft + paddles for
Mycobac by auto -

Little Sulphurizing parts,
Extra Ammonia fittings

Extra Cyl. Res. + Conspers
for Engine -

What pipe I decide X -
40 ft. ~~2 3/4~~



4 Cent rot for rope -

Spinning about Conspersing
Dance To able -

Lehr Tear put side of
Para Shep

King is holes right in
bucket of Cells for fuel

Miller - How much powder
his Centrifuge takes -

up to 1000 lb of ~~oil~~ milk
over lake

Amber 245 gal mix
150 Benzol - 3430 lbs acid
10 mlnc 15 504 40% mlnc 52c
460g. 112 ac. to 10.9.

~~Enter = (coeff) of Blue Prints~~
~~Neutralizing Pals -~~
Mean wt of am

Ask Boss of the am
get contact of am pl ale

	Daily	Drums Daily
Firestone	1000	1.2
Miller R Co	120	1 week
Fish Rubber Co	154	1 1/2 week
Morgan's Car light -	385	3 week
Waldrich Electric	134	1 week
Rumy mede	77	6/10 week
Scott's Neck	44	6/10 "
Mitani	100	8/10 "
Merrimac ref q's	100	2/10 "
Seydel	231	18/10 "
Raggett	385	3 - "

Salt 2775 daily 12 375 lbs -
1121 lb all night off
Ames Print works - 1080 lbs week

7 days 2378 -

15 1/2 week Oil - 825 lbs Drums

Chromicium -

Test acidity of water
over cobalt Nitrobenzyl
Settle before pour to
still - Heavy heat still
up -

Open Can 6370 here

Seal about Window

6518/2

98% acid

Lead line one outflowing

Pat -

Distillapp - Alcohol Lamp

Violin - Heating

Long - Fingernails

supported by

Liz 13

54/100

Let fill tube full of flake
Heat little above Bal P of
Nitrobenzyl pass Vapor
Hydrogen through Nitrobenzyl
15 or 20 deg below its
boiling point & point
Vapor thru the tube &
then to Condenser to
Condense the Ammon

Get King 100 lbs Zinc Dust
for analysis desecration

Order record Sulfate
Reserve from Item -
250 lbs -

Order had Sulfate
check here -

13.76 lbs gal Mox. acid
u

Contracts for acid June 13
to April 1st 1916

175 Tons month Mixed acid

59.00% H_2SO_4

26.27% HNO_3

2.90 cents 100 lbs

to Dec 31 1915
100 Tons month 98% acid

150 Tons 15 Oleum (28% fuming)
1.12 $\frac{1}{2}$ cent 100 lbs -

Analysis Oct BP 183 cent

Test for hydrocarbon -

Nitrobenzene -

5 cc Anilin add 10 cc HCl

distill with 15 cc water

No cloudiness on cooling

Have contracted Truesch
for 200 Tons month 98% H_2SO_4
May start - This is for
Rauhenhoff = 150 100 lbs

Contracted with Geul
Chem April 15 to Dec 31
100 Tons month.
98% 100 100 lbs

Olum Geul Chem 20%
Apr 15 to Dec 31 =
150 tons month.
1.12 $\frac{1}{2}$.

Mixed acids *with receipt*
350 000 lbs month 175 Tons
May 1 to April 16 1918 -
290. 100 lbs 59% Sulfur
26.27 H₂O₃

B4J - 300 Dbl - for mixed

275 gal Benzol
30 $\frac{1}{2}$ gal } 2093 Unbrngol
213 gal Olum } 3538 lbs acid
12 $\frac{1}{2}$ % 48% 87 $\frac{1}{2}$ % steam } 169 acid to
1 Benzol.

Order 5 Tons Shellac
ask Hoffman how he got rid
of 1500 lbs so quick

B4 Jackson - Mixed acid at
380. Costs for acid 12 cents
Lb of Sulfur
Geul Chem at 290. Costs 9.47
2 $\frac{1}{2}$ cents less.

Cost lb Benzol for acid Geul Chem
1.12 $\frac{1}{2}$ 1.88 cents
B4 Jackson 20 lb 3.38 or
1 $\frac{1}{2}$ cents more.

If I pay 65 cents gal &
make 6 lbs to gal & sell at 75c
for Phenol, I make about as
much within 1 1/2 cents by
trading gal of pure for a
pound. As this is easy
way to get Benzol its a
good trade,

Save gallon or so of the
Mixed acid after nitrating
bring to Laboratory & see if
it will nitrate more Benzol.

Think 5 or 6 to 1 blank
stick better, think blank too
weak fibres pull off -
if it gives poor % from
checking, do some sparging
such as adding a little
phenol 6/4 & Phenol -
Don't remember if we used
Paran 4 to 1 etc. ask
Moore -

How about Trucks for
Assembling room - Lillo
Assembling Table -

How about Oldshap and
nearly finished -

Money to B + Jackson
Will take 75 Tons Obeum
per month balance year

\$440 ton
Also 160 tons month
Mixed acid at 38¢) They
for balance year.) accept this

Ask you will have much metallic
Iron use per 1000 cells
+ a lot of Sulfur Obeum

Hard we are making 4000 more
than want go ahead now +
make up all the numbers of every
kind for stock.

Hester ~~John~~ will
buy acid Equip
Shipped 11/15

Give Choudhury a barrel
for coal dust from
~~Wynne's~~ ~~cellar~~ —

J. Langsdorf 68 Whitney St
Newark -
Foreman for D. Kelly
Had change Creamery
Butler C. Lane - etc
3 - ps

Centerville 575 Road Run
1100 Key of Bristol

Cambria Wages \$25 daily
Center \$14, daily including Beach
Want steam now for 38 spars
per hp 190 hp

Shed & ~~10~~ ~~Salvage~~ ~~timber~~
for men

place for 2 more
centrifuges

If Downside Royal
is good put
in yard for Andrew

Send over 1 ton Crude
for Kings by his still

For every ton phenol .4700
lbs of muck from cans =
2400 lbs per 1000 lbs phenol

Caustic Soda Contract
for it for 9000 lbs phenol till May 1st

Get slow speed motor for
Junior, Model 800, pull 10
48 Rev. Speed for 20
Night Eng for Compressor
300

~~Backlog - Galts Etc
But together a left
up all together~~

~~Page for Centrifuge~~

~~Enquiries wanted doc~~

~~Right in Aluminium~~

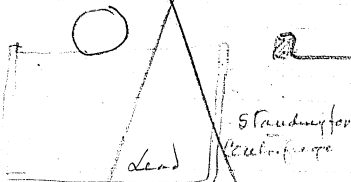
~~Enquiries~~

~~27 - 200
28 400
29 400
30 450
31 800
32 800
33 800
34 800~~

~~Sample run No. 100 gal
distilled all at 205°~~

~~Iron fed 1200 lbs in
10 Hrs. in Can change~~

~~Speed motor 1/8 HP motor~~



~~Step used some~~

~~Brine Tanks - Edg. turned
up -~~

~~Crusher for Muck for
Centrifuges~~

~~King did you or did~~

~~Melvin's line of gear~~

~~Ernie's diamond & Co.,
(Receipt)~~

~~Long Condensing
tube on Sulford
patroling Co. (Key)~~

~~Pack Cases are hopped
iron feed to Amline part
& have center hole +
did so can be removed to
fill a tight class = Screen
c. $\frac{1}{8}$ mesh~~

~~Mica bonded in end of
iron screw feed on machine
pat Easy cleaned~~

~~Did top wash tank, vent up
to roof -~~

~~Acid to wash hands, to clean
machine -~~

~~Still to be done~~

~~Pharmacological~~

~~Mitsui 1600 lbs day 50th March 1
Shimokof 4000 " 76 May 1
Haffun 2000 " 76 - June 1
Hagden 1000 " 50th Peace declared
868"~~

~~Why did phyllophary
Pa. A. A. 1/2 D. D.
M. A. A. 1/2 E. -~~

~~Cover phyllophary on all
pat. - M. A. A. safe.~~

~~Resistant to
slow down
centrifuging at 10000~~

~~Pat of Vascular with
grafts to grasses acid
Cools - Steffleke
Putty -~~

~~Myriophyllum 10/10/10
Double de number -~~

~~Get ratings from Dun + Co
Buggart - M. A. A. firms -~~

~~for New Carbothic 1000 lbs
daily 7 days 1250 lbs
Magnesium chloride
37500 lbs month. Place
order for 6 months
\$4500 - Total Value~~

Place order for Caustic Soda till May 1st -
10000 lbs plus hand 2 lbs
Caustic per lb -
17000 lbs daily -
Contract will be 2500 Tons
\$ 90,000, Total

171 Caustic
1 plus hand

Average Price Aniline sold at
48 Cents, June 17 =

See if a gallon ~~Can~~ be
put in basket ~~of~~ ~~Caustic~~ ~~freeze~~

It evidently ~~is~~ ~~is~~ ~~is~~ 4
Centrifuges, 1 Can
30 men $\frac{1}{2}$ a Can
Weight 200 lbs - 400 lbs in
Can - 20 men running
5 men to fill 5 to unload

See King about time it requires
to freeze

Order 50 More Copper Cans

Our fine chief go to
Aniline plant beach
+ arrange -

Put on Night Supervisor of
Laboratory at Alaska

Let Priest, Canadian
transfer press -

and 23 tons 98%.

Hence 10 Tons month
Ship on Oleum
23 Tons on 98%.

Any more output must
have more Oleum

1000 lbs Phenol ^{additional} 1630 lbs
daily of Oleum 20% of 98%.

May get 98% from old
plant if they can use
weaker acid for neutraliza

Airline requires 48 Tons
month per 1000 lbs. airline
month.

Also contract. give
6900 daily 30 days

See Meadcraft + see
if correct.

~~Steers for Kammulob
big 5000 Tank
+ ball 20000 Tanks
5~~

Benz sulfonate Soda

white dry weighs 50
lbs Cubic foot, from

Contract says

Dried 24 hours only 40 lbs -
~~How to check~~ →

20th, plate lead,
Went Coat Copper Lens
L Charge in Koth.
Lead anode -

600 gal ~~water~~ of water,
43" high (10 tubes)
1350 lb ~~water~~ Salt

then Pour in Benz
till vessels 61 $\frac{1}{2}$ "

325 gal Sulphuric
acid p. 12

600 gals water (43" high in Tank)
1350 lb NaCl
325 gal Benz sulfonic acid run on
Till shows in Tank 61 $\frac{1}{2}$ " inches high

59.45 daily wages
Schweizer 60.55
Goldier Amt 5.80
No Lead 7.24

Experiment June 24th -

80 cc water

30 gram NaCl, it all dissolved and
temperatures with some difficulty
54 cc Benz sul acid from King
Plant, Poured Benz acid into

NaCl solution didn't notice HCl
fumes - Got very hot, clear
solution - Chilled in ice water
Very thick mush, vac filtered it
1/2 thick disc, chilled again

got 1/8th inch disc, then added
MgCl, while cold, got 1/8 disc
Tried more MgCl, practically
nothing - Chilled it in ice -
got 1/4 @ 1/32 probably 1/2
1/2 more

This shows acid in MgCl, better
should settle & get cold - Could
save 50 to 100 lbs phenol
day if ice cold probably
not pay

Tried 75 cc water

30 grams Anhydrous Na₂CO₃
it dissolved - poured 54 cc
Benz acid in sections, frothed
slowly gas - Very hot it was
nearly solid mush when hot
Its very much thicker than with
NaCl cold

Should try over again -

135 cc Water - 54 Benz acid

42 grams Sulphate Soda
dry - 110 cc didn't dissolve at
one temp so added 25 cc
more Warm clear solution
Chilled in ice, went thick
mush - filtered vac got
disc 75% of the thickness
of NaCl - Chilled again
got 3/8 disc - Then
put in MgCl - got
1/4 of wash disc showing
too much water used
This is promising if can get

enough Soda in with 100
or 110 cc perhaps 42
grams is unnecessary

In all these Operations look
out for Water. Anything
above 100 cc & 30 grams
NaCl bad.

Joseph B. ...

1 Sulfonamide 3600 lbs
Dry from centrifuge

Lot 2554

Cal must be in
dry tank -

Diphenylamine

Heat $\frac{1}{2}$ molar Amine with
1 mol of Amine Hydrochloride
to 210-214 for 30 to 35 hours
in a long necked flask provided
with a condensing tube in
more quickly by heating mixed
in Ventell under pressure to
60 to 75 lbs pressure -

ZnCl₂ excess.

Treat product with 3% HCl
Diphenylamine & corresponding base
separates, wash to surface on
Gel, Solubility in water & long

Distilled by repeated
Crystallization Benzol or
ethyl alcohol, smaller
mol. finally by
distillation

Modern way heat in centrifuge.
210-240. - Product treated
Hot then series of water
washes as usual.

Low Oil, get weight
per gal also spec gravity
of Benz sulfonic acid -

King says.

600 gals Benz sulfonic acid
1200 " water
2700 pounds NaCl.

Determine amount of MgCl₂
required mix & test if not enough
add more & test solution should
be cold. May have to cool
down to 40 Fahr if want high
yield -

15% Glum is OK use 3600 lbs
to 2000 lbs Benzol + no 70%.

Should wash out crystals in
Centrifuge with a little
Saturated Salt Sol

King Cultured
Temperature fusion should
be 305 To 330 Cent its usually
308 To 310 best,

Care - Want lower
the Condensing power
on ~~stainless~~ parts

~~Kamenskoff~~

2 bag fusion parts
& extension ~~old~~ to
keep old parts open

~~from time start to melt Na -
930. 930. 24 hour~~

~~Started part in salt 10 pm
till 8 am -~~

~~Order Louger therm for
fusing part, King has
meant he goes to quon
to goldic 2~~

748 Old plant bleed

Start, not hot, have to cool down
+ let chambers run + then dip
it out

2 1/2 @ 3 hours melt MgCl₂.
put all salt in tubes
(3 or 4 hours - at end
of the 4 hours whole
reaction has taken
place - adding salt
Cool as salt is at
room temp -

1050 lbs MgCl₂ 1500
lbs salt - 1000 lbs
7 hours - to 8 hours
766 lbs ends 560 CP
Use: Enns. & (1000 lbs)

Deposited up to 3 1/2
Calquado # 5700
New Calquado

MgCl

Set 1.857 parts water at 15°C
100pt water at 15.5°C
add about 200 parts of MgCl₂
only

Merck's Insulyn 1 part
MgCl₂ des. in 0.6 Cold &
0.3 hot.

Tried to 50 grams MgCl₂ from
Scheidt dip in 350cc water
little cloudy probably
insufficient that more than
1/10 of 1% cloudy stuff -
temp room 96 F hot

think 40cc ^{or 50 grams} water to
50 grams is practical
1/2% don't clear cloud as it
255

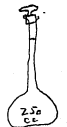
3600 lbs dry Benz Na
2000 lbs soda
Worked OK think little
shy soda was like
a thick mush.

Dry effect Benz Sulf Na
deposition on felt
Cow hair, Canada,

2 1/2 if cant turn off the
Dry salt from Colts fungus
leaving 1/2" on

Henry Keesenhardt
Keesenhardt

6 cc Benzol mixed with
250 cc Benzene Sulfonic Acid
in gives in 10 minutes
1/16" clear benzol.



This is 2.4% of the volume -
or 12 gals for one sulfonation
The small part is 1/2" of more
1/4 inch would show 1/4"
+ defect 1% or less -
In 1 hour benzol scarcely
increased any -

Get another book like this
Keep in my table drawer at
house & copy all formulas
Etc of the diff. points &
procedures

When we get 15% prices
Glen use no. 98%

Get more books about
the Through Cables
for Speakers Dec 2

Get ~~the~~ Extra batteries
for Amline Reduced
Pots

Christmas

Examine inside Amline
reducer & switches & shafts
+ test ~~reducer~~

Test metals in solution
from California
dolls (various)

Metals

Amline delay ed all
day till 4 pm
await shipping direction
was ready 8 am

Hayes -
Wants Electric Water on
Crane over Recycling
Tank -

J V Miller about hiring
five hydraulics &
hoist -

Hayes - Get up a
Special list of 20
Opera High grade
records for Sept 1st

People complaining of
lack Opera + classical

Hayes: Get some Sudan
Bands & test 10 new
Readers acc of 6 facts

Kennedy take Blake
Burkhart's letters
& investigate thoroughly

Organize gang of 15
men for permanent repair
men, NY Bond etc -
to lead local dealers
& satisfied customers

(101)

100 cc of liquor from
Centrifuge clear.

Requires at 90 deg
Fahr 15 cc of

Saturated solution

MgCl to bring the
Salt down at this
temperature -

MgCl 50 grams
40 gal water

Next sample

is practically
saturated, although
it all dis with
35 cc water -

10 lbs white salt to 1 gal water

Determine amount necessary
in our Benzene of liquor from
Centrifuge at end temp.

Determine Capacity of Egg for Whites

Specific Grav of liquor
from Centrifuge

1.207 at 86 Fahr 30 C

Weight 10.05 lbs per gallon

~~Determine acid 1.470 at
86 Fahr 30 c~~

~~Weight 12.24 per gallon~~

Continued -

100cc Centrifuge Sol }
15cc Sat MgCl₂ } OK

Took out a very large
quantity Crystals at
90° fab on adding

Considerable MgCl₂
& chilling in 9° cc
water only little
more came out
not more than
3 to 4% of that
& couldn't get more
by 2nd chill -

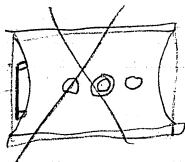
Later. 11 grams CC of

Sat MgCl₂ Sol all put in
at once is about as good
as 14 put in in sections.
15cc to 100cc of Centrifuge
Sol should take it all out
with Margin -

Can put 10 grams MgCl₂
in 100 cc of Centrifuge
liquid & it does about
as well as adding
liquid MgCl₂

25 lbs Para used - July 2nd
Huffman has 96 lbs on hand
150 lbs in Chem rooms

Spent
feet.



Oil Street Cart track
+ all road Hwys
discs -

Paint up our old
gas plant - Sort
pipe & oil tanks.

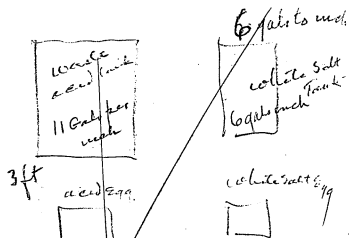
Kammerhof get me few
pounds of crystals of
Sulfate Sulphate from
your waste liquid -

Try Kammerhof
Sulphate lime shelf all
from filter press

See the Centrifuge
- using Catalogue of
Speed

Isle of Centrifuge
Expert

6 1" ~~Foot Shield~~
Valves ~~Jenkins~~ -



36" in vol of tank is 216 gals
120 water + 1200 lbs white
100 - 50 - 100 + 100 white salt

100 lbs do 75 °C
Morcas 1.81 liter tank

~~Order Vac pump
for Wg Marshall~~

~~10 lbs white salt to 1 gallon water~~

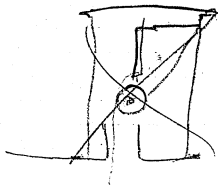
~~100 gals centrifuge liquor
requires 15 gal white~~

~~Salt Solution -~~

~~36" in acid tank~~

~~is 400 gals will require~~

~~60 gals white salt
liquor -~~



White Sacs & Egg heads
82 gal -

$$\begin{array}{r} 984 \\ 50 \\ \hline 1484 \\ 1484 \\ \hline 2968 \end{array}$$

$$\begin{array}{r} 1650 \\ 1480 \\ \hline 1698 \end{array}$$

$$\begin{array}{r} 1470 \\ 505 \\ \hline 1975 \\ 1975 \\ \hline 3950 \end{array}$$

Months run was down

	gals.	Flowing	%
Grade	42000	1400	
Pure Benzol	21992	733.3	52%
" Toluol	5095	169.8	12%
Refined Sol Nap	2422	81	5.8%
		<u>984</u>	

Loss of metals 1.5gr each
in Contingency bag for
48 hours -

	Loss
1 Zinc	1.243
2 Tin	0.563
3 Brass	OK .090
4 Copper	.689
5 Non-bonded plate	.248
6 Steel CR	.156
7 Aluminum	.249
8 Nickel	OK .065
9 Nickel	OK .058
10 Magnesium Iron fair	-.411
11 Tin plate	.243
12 Galvanized Iron	.513
X Aluminum	.174

Copper can eat 1/3rd away
60 days + be useless
If nickel 2 years, if plated
occasionally good for years

Dubs for tops brown feed
send night down 1 of
them with new bell

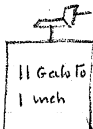
Sulfonating 2 1/5 Peay
30 1/2 gal 4%

213 Oleum - feed slowly

Send Cement work
for 20 muzzles
Spring on

Tell Bachman go ahead with
Blush Tank wheel plating
& let me know when ready to
to hurry -

Get the Vac Pump sure



Centrifuge acid
Tank

Use liquid 36" high in both.

White salt Tank 36" high 217
gals.

120 Galls water into which
1200 lbs white salt is dissolved
increases in bulk 81%
making 217 gals

Centrifuge Acid Tank 36" deep
Holds 400 gals,

To this 60 gals of white
Salt solution is added
or 15 gals to 100 of acid



White salt Tank

Sulfonation -

275 gals Benzol put in
during 1/2 hour 30 1/2 gals
98% Sulfuric added
Then 213 gals 20% Oleum
added gradually at a
speed to keep temp just
below boiling point
of the Benzol. Tested
from time to time till only
about 2 or 3% Benzol
left

Salting

600 gals Benzosulfonic acid
1200 " Water
2700 lbs NaCl.

Fusong

3600 lbs Dry Benz Na
2000 " Chloride Na
Temp 300 to 330 —
308 to 310 heat,

Disconnect top, containing
Cool gas still send to
Kammshoff

Phone Badger when over
Big coil will come on
Send by Express

Teleph Metallurg for
Muzzles-Sponges now
wet with weak alkali
~~strong~~ Fred put rubber
around edge keep gases
from force on a rubber cloth on face
against which sponge rests, etc.
for Muzzles use phosphoric
carbonic L Otl try both -

Make men use Z 4 boy
to wash out
L Otl to allow to
this -

Fred etc paint steel
in chelbarrows - all machine
+ piping etc -

Boxes over melons

Store House, Use Kammshoff

Ask Shroyer who makes
felt or hair cloth for
filter ~~plastic~~

Try asbestos filter cloth,
L Otl to try if asbestos stands
the acid - Check page acid -

J V Miller will send acid
vacuum pump - + put one of
the small Eggs between vac
filter + pump to stop acid
gassing in pump -

Get sketch Kammshoff of
old steel and eye vacuum ~~11222~~

Nickel plate some
Square inch Copper
for trial in Centrifuge
acid.

Try the Cow hair felt
and get some.

Get some shovels &
hubs for handling
Centrifuge sluffs -

~~General all work or
machine 2/19/27~~

~~Tap holes for machine
& Pumping water pans~~

~~Make water & up stair
in wood Dry Machine~~

~~Check about iron feed
Hurry~~

~~Keep always open
Silver tank~~

~~See about jacket to cover~~

Lowres over Drying
Pans Pump Salt Na -
Stop rain -

~~See about repairing Pond~~

Why don't pump for
well across

Where is pointed Tank
atylene Salt plant,

Hurry up atylene Eggs

See my book on
porous - for
My dam & atylene
Pans or Personal

Vel Centrifuge 5796 ft
with cloths

Every pound pulls 382
pounds

Pressure per sq in

$\frac{7}{8}$ " air stuff - 5.8 cubic ft.

Product dry 290 lbs
4" thick 700 Rev

1 Slush pan - took 1 hour
20 min scale do - 1
hour = 10 ash 2 qtts water

Not very dry but fair

Stopped & started remove

3.35 all out at 3445

1st Barrow 2nd at 3550

20 minutes to completely

Empty - "think low gas close up
12 min

Weight, Wheelbarrow & all

180 lbs wt wheelbarrow

75 net 105 lbs

2nd Barrow 175 lbs

Wt barrow - 74

Net 101

Total 206 lbs

4 pans

Wheelbarrow

210 lbs

seems left
617

Took 20 min to unload
a fresh can -

Took 5 min to run
in box full of fresh
into Centrifuge.

One Cop per fresh
Can full. -

Spent 5 ^{cents} per
500 at 52¢ speeded
up - to 600 @ 700 - large.
Stream came out 2 min
after speeding -

Note change shield tubes
for 1/2 inch - the 1 inch
too big.

✓ 615 put in salt
water off stopped
620, very thin stream
came when stopped

Think it will be better
than the 1st test

630 detached from side
without clean at 645

Net weight of this
charge 2.18 -

Get a larger React
to use & change it
to Rell's - use Skunkoil
for para -

First lot 120
Last lot 124 lbs

Original Product one
Flush can, weighed after
removal from Centrifuge

206 lbs Dry 120

Second batch

218 lbs Dry 124

This shows 42% Water
or loss

22 Hours
Product per Centrifuge
at 1 hour 55 min.

1584 lbs dry salt

Centrifuge

Load Centrifuge 5 min
Slow speed just so it dont
Slop out

Run slow 15 minutes
 $\frac{1}{2}$ speed - Then run to
speed 750 to 800 Revolutions
for One hour, H

Then wash and run
15 minutes -

Total time

Fill	5 min
Run slow	15
High Speed	45
Wash run	10
Remove	20
Interval	5
for next charge	100

1 hour 40 minutes
Dry product 124 lbs (124)

Can reduce this

See if learning has
Exhausters at the
Small Works I saw
also Malloy - 5'
foot -

~~Woods ~~is~~ drying
pan~~

Daily send up gal
of fusion liquid

25 lbs of Centrifuge
stuff -

60" Blower or exhauster
Goodman 10 HP Rev 535
7800 4 HP - " 465"

2 of them -

Moore Let me know
how the new shells
work -

Wadsworth hurry
I need 5 Ton T.M.
See order -

Get a throwing or
differential roll for
breaking up
Centrifuge stuff -

Phenol 78
Benzos₂ 157
Benzos₃ Na 203 -
Phenol 93 of the 203 46% w phenol

Centrifuge Cak undried 55%
Soda 45% Valilite -

Gives about 50 lbs phenol to a
charge

Tell Harry Miller
Dally & Christensen
get 50 white process
fund -

Fry Magnete. night in the
acid & detto Carb Mg &
see how it follows -

2 below Zero Cent

- 712 - Can at end
- 714 Can on bottom floor
- 715 Started put in Wheelbarrow
- 718 1st Barrow loaded
- 724 2 Barrow "
- 728 3. " + hoist,
- 734 all crushed -
- 737 all in Measure box.

738 Started put in Cantr
100 Rev Min

741 get in Cantr
It is too full had run close
+ use stick to shove off to
slip coming over

750 Running about 250

8 pm 300 -

802 360

807 405

811 465

816 - 610

827 810 About streams coming out

837 750

26

210

111111

Wants 900 gals spots in men's eyes

840 800 Rev considerable stream

844 835 "

853 two 3/16 streams coming out

859 - 760 Rev

In 10 sec gave 47 cc at 9:05 pm
Rev about 750

1 lb liquid a minute

920 stopped 216 cc coming
off per minute

at 112 am (both fillers)

+ unfiltered gases

9 cc a unfiltered

Clean string index

Get tracount for
Centrifuges

White Sals Malt 145
Centrifuge

80 cc filtered Fusion
Liquor - when neutralized
with dilute H_2SO_4
gives 100 cc plus $7\frac{1}{2}$ cc ~~11.30 pm~~
phenol in 3 minutes.
in 7 minutes $8\frac{1}{2}$ cc -
at 11:45 - 9 cc.

at 11:27		$\frac{1}{10}$ th of
11:30	$7\frac{1}{2}$ cc	The height
11:35	$8\frac{1}{2}$ cc	is phenol
11:50	9 cc	crude
12 midnight	$9\frac{1}{5}$ cc	

80 cc unfiltered 103 cc
neutralized -
11:58 pm - Confused phenol top
12 midnight 8 cc confused

Don't think it makes
any difference if fusion
liquor is filtered but
not as far as getting
all the phenol is concerned
It never could be filtered in
filter press as it would
run thru any filter cloth
only fine filter paper does
it & its very slow -

If there is any filtering to
be done should be on
crude phenol. better buy $\frac{1}{10}$ of

1240 - Wet Centrifuge
Cake 200 grms with
100 cc Caulfy Liquid
put in small Vac
filler 1240 am →

In 1 Hour it seems about
as dry as Centrifuge Cake

Packed it hard with fingers

In case Centrifuge Cap won't
fit enough could use
36" or 48" Vac fillers
~~as~~ as addition 4

50 grms Centrifuge
Cake from last Ex. amount
140 min from start
Cut big piece to get
average lost 33% of
weight in 2 hours
212°Fahr in Capex
Dry oven -

In 2 hours + 30 minutes
lost 34.5%

In 3 hours lost 34.7

Didn't stir it at all its own
weight gave 4 1/2 dia

I weighed the Ferric ox from
filling 100 cc of fused
salt solution -

Got 437 milly

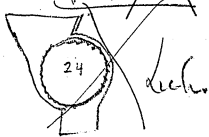
3785 cc to US Gallon

This make 17 grms Fe₂O₃
to Gal of fusion liquid

01551

In gal bottle of fuson
leaves: I noticed that
in 5 hours the $\frac{1}{2}$ oz
settled out so it was
 $\frac{2}{3}$ clear dark + $\frac{1}{3}$
 $\frac{1}{2}$ oz stuff after 12 hours
 $\frac{2}{3}$ clear to 1 setting

Mineral lamp - Ceylon
granite split in leaves
Cut leaf right with - use



Waxed down ~~Purely of 5 1/2%~~
- " Total 12
5 Nap 5.8

30% low

5% wash

5% in hand

20 wash oil - get it back

Naphthal 2 1/2 lbs after shrink
daily - probably 300 lbs

Prep some with shell salt
Stir Vigorously 4 sec if it
settles better by stirring

2000 gal light oil ~~Pure of 1040~~
Total 240
Sol Nap 116

24
Order ~~for~~ Muzzler

Ask cheap process
man to try leading
Bearing Evasion)
He make a piece
we test in acid.

Tests -

- 1= White Salt liquor
- 2= Sulfonating
- 3= Brine & Water
- 4= NaOH for Sulfonation in Recovery
- 5= Neutralizing -
- 6= Alkalinity of fused CaO
- 7= Acidity of Dry Brine
- 8= Volatile in Benzene
- 9= Purity of product -
- 10= Analytical purity
- 11= Purity Para -
- 12= " Aniline Salt

~~Heffman~~
Wash to Drum
Aniline light acrid

Caustic
2 July 26
2 Aug 3
2 10th Aug

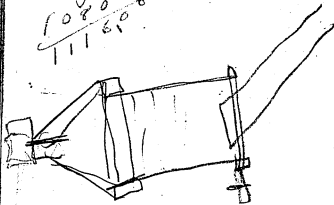
It's get the summer

Edmund Ross Bros
316 Franklin St
Bloomfield, N.J.

Mason Aint you losing
Benzol at separator box
at Korkow

See if a cock at extreme bottom
CANNOT phenol tank to draw off water

Get report to Mike
and Aug

$$\begin{array}{r} 3600 \\ 31 \\ \hline 3680 \\ 108000 \\ \hline 111600 \end{array}$$


(140)

$$\begin{array}{r} 3600 \\ 2000 \\ \hline 5600 \end{array}$$
$$\begin{array}{r} 20000 \\ 16800 \\ \hline 32000 \\ 28000 \\ \hline 40000 \\ 39200 \\ \hline 18000 \end{array} \quad 3571$$

(141)

1 hour - new wood cloth
10 sec - 68 cc
Water 10 min 50 cc

Started	12:40.	
Sketch in	12:45	
at	1:40	Running 68 cc
"	1:50	" 50 cc
"	1:55	25 cc
	2 PM	34 cc
	2:05	40 cc
	2:21	26 cc

Took off - it obviously shows
back of edge is better.
New head of thumb
Think 1/2 hour from
start will do it if speed
8cc -

6
 600 -
 20
 720 - 40
 480 - 20
 12000
 50
 60000
 60000
 66000

60000
 8700
 15344
 76500
 67200
 6885
 15
 76

110 | 1320 (12
 1100
 220
 72
 220
 144
 144
 1384
 53
 74300
 75200
 7118

180 (454 (25
 360
 940

180 grams min

75 lbs water in $2\frac{1}{2}$ min 1 lb

130 min	75 lbs
135	73
140	71
145	69
150	67
160	63
180	55

18th

Phernal contracts

Daily US Govt

Logser	100	100
Moments	100	50
Hyden	100	85

940

1000

2000

1000

600

400

2600

940

3540

4000

4500

5000

5500

6000

1000

1500

2000

2500

3000

3500

4000

4500

5000

5500

6000

6500

7000

7500

8000

8500

9000

9500

10000

10500

11000

94

500

1400

79

2100

850

7050

Kammerhoff -

Uses 110 litres Benzol } 2.96 to 1
170 " 98% Acetone }

8 hours to sulfonate 3 batches 24 hours

Fuse 900 lbs Ben Sulfonate with

720 lbs Cumalic 7 to 8 hours 3 batches

24 hours Product 420 lbs Phenol

1.71 Cumalic to 1 Phenol

Neutralizing & separating Phenol in
Tank takes 8 hours Product 400 lbs

Distill 550 lbs in 12 hours, Charge is
650 lbs Crude Phenol

Takes 2 hours time to collect from Na₂SO₄
breakdown

Sulfonating mix 73.5% Sulfuric
26.5 Benzol

June 8th

Requires phenol for

10000 Records daily medications	2533 lbs
12000	3039 "
15000	3800 "
20000	5066 "
25000	6330 "

This in addition to use of 20% of the
records -
But not including Recovered "

36	22 - 2600	
11	2600	
<u>36</u>	7000	2
366		
<u>79</u>	4800	

$$\begin{array}{r} 120 \overline{) 14000} \quad (117 \\ \underline{1200} \\ 200 \\ \underline{1200} \\ 800 \end{array}$$

$$\begin{array}{r} 30 \\ \underline{1} \\ 160 \end{array}$$

$$\begin{array}{r} 120 \\ \underline{2} \\ 240 \end{array}$$

Notebook Series -- Pocket Notebooks
Notebook, PN-15-07-27

The dated entries in this pocket notebook cover the period July-August 1915. The book was used by Edison to record ideas about business matters, experiments to be tried, and other tasks to be performed. Many of the notes have been crossed out and marked "Ent." Clean transcriptions of some of the entries can be found in PN-15-07-22. The experimental notes pertain primarily to chemicals. There are also notes on disc records and salting experiments. The business-related entries include statistics on record production and phonograph cabinets on order, along with notes about chemical contracts, places for recitals, and various production costs.

Among the numerous Edison employees mentioned in the book are experimenter Charles T. Dally; H. H. Meno Kammerhoif, supervisor of operations at Edison's chemical plants in Silver Lake, New Jersey; plant inspector H. G. (Goldie) Goldthwaite; and chemists Victor L. King and Ludwig F. (Louis) Ott. Chemical manufacturers and suppliers mentioned by Edison include Butterworth-Judson Co., Dow Chemical Co., General Chemical Co., Grasselli Chemical Co., and Heyden Chemical Works. The pages are unnumbered. Approximately 150 pages have been used.

Exit

The amount of iron in waste
acid from Mykane pots
One gallon contains 2.67 grms
250 gal ~~contains~~ losses
667 grms

Reuse Lott to 25 week -

Woodward -

Pure Benzol	52%
Toluol	12%
SNap	5.8%

Losses - 5% acid wash
5% in heads
20% wash oil (get this week)

Napthalene 2 1/2 barrels weekly
probably 300 lbs pure
If we get 2000 galn daily Lott
Benzol 1040 gal Toluol 240
SNap 116 gal

Dried ←

40 cc

50 cc salt
25 Benz
Benz

Cake weighed	24.4
White salt	16.0
Yield 1.01	40.4
39.6% white salt	

30 cc

Cake weighed	23.0
White salt	8.8
Yield 1.06	31.8

27.6% white

20 cc

Cake weighed	16.5
White salt	3.7
Yield = 1.01	20.2

18.3% white

Took 45 cc water ^{the volume}
13 grams salt ^{Make 52.32}
added 40 cc Benz ^{cc of liquid}
Benzsulfonic acid

Use Vap filter
Cake weighed 39 grams
White salt 2.8 (too low)
Yield 1.67
Neutralized 90 cc of fused liquor

Jamaica Brown test
30 cc Benz acid 33 grams
12 white oil
Yield 1.5
Neutralized 83 cc fused liquor

ditto 20 cc Benz acid
22.5 grams
4.9 white 1
Yield 1.4
Neutralized 78 cc fused liquor

Minutem /amp ^{cut} ~~Ceylon graphite~~
single leaf split -

In fusion pot liquor
3 days soon oxide settles
4 to 11 -

Sample cast iron Buffalo
foundry & beach Co

6 grade for Oleum OK
no loss

distill in Centrifuge liquor
for 65 hours ^{At 1/15 down}
loss 2 grams 0.42%

2 grade - in Centrifuge acid
240 gram -
loss 1 gram 0.42%

Single Na in Benzylsulfonate Na
58.5 lbs Salt turns
158 " Benzene Sulfonic acid
to The Soda Salt.

July 19

80	824	32960
100	939	46950
150	4976	374700
200	4231	423100
250	1860	232500

X 3276. $\frac{49140}{1.159.350}$

Think this is OK

~~480~~ 480 gals water $\times 36$ "
1080 slatly $\times 39\frac{1}{2}$ "
260 - Pabing $\times 19\frac{1}{2}$ "
2121 $\times 19.6$ mls

Kings water

If charge of sulfonate of Benzol
is 200 gal $\times 15$ miles then
not less than 400 gals water
+ 900 lbs of salt

Langport that 500 gals
of water + 1150 lbs salt for
used first + if found OK
then 400 gal water +
900 lbs salt

I do not think it possible
to go below this limit

We always used 2 Vol of
Salting liquor to 1 Vol
of Sulfonated Benzol.

48 water cc
13.5 gram NaCl

increase the bulk of the
waste 4.5 cc

Increase from 48 cc to
52.5 cc

Bulk increased 9.15%

actual determination

Nitrating Acid (waste)

in 4 days settle in
gal bottle $1\frac{1}{2}$ " depth
at bottom —

First Batch fused & dissolved
Ott-dechlorination

100 cc of liquid dissolving
phenol in soda
recovers 28.42 grams
H₂O up to neutralize
Using litmus paper -
wrong see Ott paper
in book ~~works~~

Benzosulfonate Soda 158

87% is acid
12.7% is Sodium

Benzosulfonate Soda 158 lbs

give 68% phenol
or 94.8 lbs

Theoretical CP
3600 lbs Benzosulfonate Soda
2000 lbs Caustic Soda
produces 2160 phenol

Sulfonating
275 gals Benzol
2007 lbs Benzol. 2100

1200 g day
Hoffman when blanks
are all shellac require

1785 lbs phenol daily
7:1. 45 mo

See ~~openly~~ about

Nickel plating

Have Copper ~~brass~~ works
for ~~Remington~~ off shell. (11)

Immersion in thin layer
Centrifuge liquor 3 days
dried up & renewed

1 sq. in 2" surface

Brass lost 90 mils
Nickel 60 " "
Copper 60 " "

Use Ni plated brass

Try the blando paint also
on Ni plated brass

Use thicker brass 50%
thicker

~~Fred Ott = Paint the
screens in centrifuge
after nickel plating~~

1st liquor from feeding

70 cc of liquor took $12\frac{1}{2}$ cc
conc. sulphuric to stop
effluorescence

Total height column
 $82\frac{1}{2}$ cc

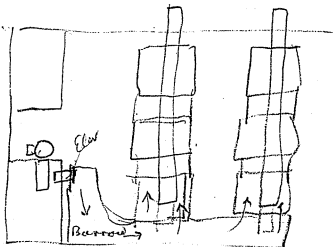
Height phenol $7\frac{1}{2}$ cc

Height oil total in inches
6.75 inches

Height phenol $\frac{1}{2}$ inch

phenol 13.5 to 1 -
If height is 120 inches
phenol should be 9 inches

OK



- 1 Man on borrow
- 1 to spaced & measure out top -

3600 Benz Na
2000 NaCl
1500 gals water in dissolving
tank

Dryer Top box

See how much water it takes
to dissolve cold Dallys fused
Cake -

~~King of~~

~~Dr Victor L King~~

~~Monk, Stutz & Woodbridge~~

~~sto -~~

~~Woodbridge neg~~

~~Aleph 352
Rutherford~~

One Sulphonation

275 Gals Benzol. 7.3 lbs Gal

2000 lbs Benzol,

Molecular wt Benzene sulfonic 158

Mol wt Benz Na 180

Weight of Benz acid 3160 lbs

158 gres in this 20 times —

58.5 Mols salt required to
make soda salt

1170 lbs salt needed —

518 gals is total of one
sulphonation to cut

275 gals Benzol

30 " 98.0% H₂SO₄

213 " Oleum

518

King calls for twice this amount
of salt — why?

518
21
497
207

3160 lbs requires 440 lbs metal Na
1225 lbs salt contains
440 metal,

King use twice the amount of salt
ask gwa to fix it

Dr (average say use stopped)
23° B ammo

Daily normally (br) 10 Be
now has it 13 B ammo

86 @ 94 lbs fresh
Culifung salt to

1 B ammo -
10 lbs to a pair
variable

Rough Exp
over Reby 5 surface acid

26 H₂O 20 cc Reby
5.5 gm salt
want 3/16 think white ↓ dark 1/4

48 H₂O

5.5
5/16 white 1/8" dark 5.5

72 H₂O

18.5 NaCl
1/16 or less white

3/8 dark - grain looking

all 40 NaBr

Nothing still
but at 30 NaBr
of 50% NaBr
Salt normal temp
80

16 or
62.5% Phenol from 10 lb
Benz Sulf Na -

Get two more Cranes

Ask Caldwell about
Motor on Crane

2000 lbs Benzol should
yield 3000 lbs of Benz Naph
dry - 62.5% of 3000 is phenol

Should get 1300 gals of
Centrifuge liquor from

the 2000 lbs sulfonation,
about enough to neutralize
but if 20% more soda used
must use free acid -

Sometimes with 2000 Na₂S
3600 they had use little free
acid

Worrell

600 gal
1350 NaCl / spec 1,125

Golden wants Eugene
leather - 6 feet 16" away
with counterweight



Para 2 Hops &
2 Stacks (w/anted) Hmli

go for healing Conks for Dryer
anything that will delay

Call - Drum / 400 lbs -
get dog drums - got
5 now

The most that Dalays
season happens will
settle in 10 days
is that 18% is still for 20g
Mud

	acidly %	^{2 gram} Loss weight %	%
#1 Sample -	4.4	186 mg	9.3%
2 more samples			
#2 sample	3.9	131	6.5
#3 Sample It was dry here 3 hours 20 min	3.6	75 102 3 1/2 110	5.1
#4 Sample -	3.6	41 3 1/2 43	2.

Experiment 1 Proper
20 lbs batch run
Weighs alone - to get time -

Started 4:50 PM - spread
5:11 - Rabbled by bunching + spreading
5:33 Sent to #2 bench + spread
5:50 Rabbled
6:10 Sent to 3rd shelf
6:30 Rabbled - bulk here too much for
no smaller rates -
6:50 Sent to 4th bench - small rates,
just does it by vibrating no manure
7:14 Rabbled #2 rack should be little larger
7:30 Sent to 5th bench
7:50 Rabbled -

Takes 45 sec to rabble 16
mins for whole of 1 bike - 20
mins to sample -
8:10 Sent to 6th bench
8:30 Rabbled #2 rates almost done
8:50 Sent to 7th bench
9:10 pulled & took 4 sample

Temperature Thermomiles inside
159 = side Therm 110

Henry

- 1 = Heating Coils for Dryer
- 2 Stirrer shafts up and for drum part
- 3 Test Aerator plug

Took Dallys clear fusion (green)
50cc added later (Catalytic
acid) - increased to 112 cc
Little more than Equal
quantities -

Gives strong clear marks
Think Equal quantities
will do!

1800.

1800
12
21600
18000
3600
21600

July 27 - Goldie
Whitell

Para

- 1 Fusion blades + shaft assembly
- 2 Quench Pat.
- 3 Paddle blades + shaft assembly
- 4 1 Cast iron stand 5 lbs
- 5 = 1 CT Barrel gear 1 lb
- 6 17-T - 2 Bore C 6209
34-T 2 3/4 "
- 7 Thrust ring 2 3/4 Bore 5 lbs.
- 8 = 2 Holes + 2 5 plates for crank 1 lb

Things Coming

One and a half pair shaft Crotchets 28th
" " " " 29
" " " " 29

Pipe ends Dyer's Sewing 29
30
31

2nd session quenching pot Stand
Crotchets 30th
shaft in prodder CW 31

Fans and left Pad Aug 3
One Ball thread SP Specialty 29
One set of new Philadelphia 31

Yale - $\frac{1}{2}$ part
Using 108 grams ^{80cc}
75 Wash - ^{24.00}
got yield 44cc + 6cc with
Benzol - Total 50cc approx
15 minutes Wash.
15 " ~~put in Benzol~~
30 " after
Temp 275 @ 290

Wooden shovels for slush
Cans.

Lead pipe from Salting
tank to slush cans

Wood box on wheelbarrow

Lead lined Centrifuges

Everything decided

100 gram Dallys Feed Cake
228 $\frac{1}{2}$ CC H₂O

153 cc latest Coulterfuge oil

So much iron that Cant see
plenaol - NG must take
iron out -

Req 170 Fusion Cake

100 gram 228 $\frac{1}{2}$ cc oil

800 gram Dallys ^{145 cc}
large lot - 1000 CC

glass 1100 in -

Settled 1 hour 50 min
only 18% is iron

950 cc clear

175 $\frac{1}{2}$ cc O₂

filled in 1 hour 33 min

4x6 Box sand filler
 $\frac{1}{2}$ " residue -

$\frac{1}{2}$ " water iron Wash
1 hour 12 min 250 cc Benzol

~~100 cc glass~~

100 gms Dilly Cake
228 1/2 cc water

Small 500 cc

23 hours

265 cc Residue 75 cc

Dolley send 5 lbs of
undried Benz belts

To keep ice from papers +
bottom of cans in freeze
bath should use

23 Baume

Wt 1st had a 5 Baume then

13 which it is now

Put up Test lab in et. l.
Bldg -

600 gals water 135 lb salt
when salt put in tank
increase 9.1%

Try Silver plated Copper
dites brass in Centrifuge
acid -
Also gold plated -

Dryer Exports 2 1/2 pairs
Each close at top -
1st Test 2nd test
4th Bench 6.1 acidity 4. 6.6
5 " 4.6 " 5 5.3
7 " 3.9 7 3.6

Acidity dont indicate degree
of Volatile -

Acidity

1 Bench	7.3
2 "	7.1
3 "	6.8
4 "	6.6
5 "	5.3
6 "	5.1
7 "	3.6-

7 This seems to show w and more heat

Sand filter - 800 gms 1.77 lbs
Dallys 1st fused cake (360 to 1600 gal
water) settled solution -
put 375 cc mud in 4x6 sand
filter already coated with
mud - goes through in
1 hour + 40 minutes -

Dallys fusion liquor -
50 cc clear when
neutralized with CaCl₂ fudge
liquor gave 85 cc
works good 12 cc phenol to 100 cc
settles fair -

German Pat 281432
Coumarone - *W*

Dallys 1st fusion cake -
100 gms 225 $\frac{1}{2}$ cc water
requires 17 cc conc H₂SO₄
to neutralize -

No separation of phenol takes
place by using Benzol
when liquor is full mud.

If filtered fusion beyond
 Neutralized by 98% H₂SO₄
 no more shows, gives milky
 liquid - if too much water
 used milky stuff settles
 in bottom side of beaker

Disolved latest Benz Na salt
 in water, water gets dark
 filtered off - considerable
 amount not soluble -
 Most of the insoluble is
 not soluble in acid,
 Considerable dissolves in
 alcohol & reprecipitated
 by water to crystals, leaflet

Dalby's caustic 2 gms
 50 cc get 11.70 gms
 pure acid to neutralize, measure
 back to ~~100~~ 12%
 Went to 60 cc & 8% caustic
 Centrifuge acid used

Get solubility of Benz Na
 in Conc salt & H₂SO₄ test

Damp stuff from Centrifuge
 2 grms 2 1/2 hours

95 @ 100 Cent, dry over -
 Loss 38% milg -
 19.3%

After 12 hours in the air it
 reabsorbed 193 milg
 50% reabsorbed

Other pieces Dalby's 15 fusion
 Cake - 100 to 225 1/2 H₂O

800 grams taken (cake)

1000 CC - 960 - 10 10 AM

Mud 360 cc 2 P.M.
 344
 328
 322

average 2
 Jan 30% mud
 8 AM next day
 255 cc

Took 578 cc of settled mud
Put in sand filter which
had water in previous
& 1/2" of #203 mud
already -
All out in 1 Hour 45 mins
~~After drying mud~~

One gram of Benzidine
dissolved in 50 cc.
of Saturated Salt
Solution -

Loss 250 grams $2\frac{1}{2}$ -
21600 lbs

13 Mo salt
by washing Centrifuge -
If plenty Salt Sol used
with a gallon it would
be 1/2 of little -

After filtering Mud & leaving
it 1/2" deep on 4x6 Sand
filter - Put in 1/2" water
All out in 1 hour 12 min
No 1 sample - 11.8 gram NaOH 100 cc

2nd Dose water all out
in 52 minutes
Sample 2 8.2 gm NaOH 100 cc

3rd Dose water all through in
15 minutes
3rd Sample - 3.6 gm NaOH 100 cc

4th Run Sample 2.9 gm NaOH 100 cc

1st + 2nd 78.1 %
1 2 + 3rd 92.1 -

But there was a lot of
Liquor in Sand -

Saturated Solution

Sulphate soda
80 cc to dissolve one
gram of BenzNa

Shell salt does precipitate
from 2 liters Na_2SO_4 or NaCl .
Toss dilute

Something wrong about
the above experiments

Made strong solution
of BenzNa in water

poured a little into
bath saturated
 Na_2SO_4 & shell salt

no precip - added
shell salt no precip
Contact by hydramant
water, only Na_2SO_4
showed traces of precip

It shows BenzNa is
quite soluble in the 2
conc Salt solutions
of course they won't
hold much but 4
liters 50 cc will hold
8016 grams -
at least of hydramant
water -

Kammluff used Badger
steel 4500 lbs in 24
hours - ~~slow~~ slow -
phase slightly yellow
well used Copper in
Monday -

See about Nitrobenz for
Acetanilid - has to be
diss in Ethylamine or
Methylamine mixed with
Think Ethyl mixed with
Save it 14 gms to 1
Acetanilid (Ethylamine &
then use mixed acid

Take 100 grams $228\frac{1}{2}$ cc
water -

powdered off above solution
filtered mixed with water &
dried at - weigh had

1.040 gms -

This is 107 lbs $7\frac{1}{2}$ O₃ to
daily output 18800 lbs
Benz Na 75 lbs metallic

The gas filled $\frac{1}{16}$ lb can
long fibres recombined
by Finkler day packing
acid Volvols

In Steam $3\frac{1}{2}$ days
Doubled the thickness & no
OK - it attacked

In Concentric acid
only swelled $\frac{1}{8}$ inch
not attacked at all

In Fusion Liquor Alkaline
No effect

Centrifuge cakes wet
2 grams after drying
Wt 1.604
put out in air extremely high
humidity -

1st	Block gained	27 milg
2	"	10 " more
3	"	23 " "
4+5	"	80 " "
6	"	20 " "
7	"	29 " "
18	"	14 " "

Total gain $\frac{203}{18}$
Weight after 18 hours 1.807

10% of original weight gain
originally about 20%

product
Emulsions tested also

used in 5 Bathing also

at 125 - then pour into CC
glass + allowed cells

See Jnl of ~~Exp~~ Chem Indus
July 15 $\frac{1}{2}$ 297

Test our Benzyl absorbent
Get new column old acc of
Belumen gets in from Tar

Amino in water can be extracted
from it by ~~Heptane~~ - this is
true of nearly neutral
reduction products. The Nitro
Compound from which they
are made extract them from
water

Stockings soaked ~~Belumen~~
deposited by ~~residual strength~~
then ground in ~~water~~ (leach
days - dry, find with
formaldehyde)

Get Hygrometer for Dally &
work drying schedule by
it -

Proving - would like
10 lbs of Nickel Hydrox
Alfrow old cells which are
specially low - Say
At below 75 w/gh
(like clemens) -

Then make 2 test cells
of it - to see how
good they work in
100 solutions & do various
checks to get it OK

Cameron's review made for
Sulphur Nephtha by using 48 acid
in very thin stream exploring
using cooling coil in liquid
& keeping alcohol to cond,

See if sample of Cameron
I have will condense
with 64% or formicdehyde
if it will jump with
Rubber & if unattached
by hat 33% KOH,

Ask Mason where the
Tow is he was to send
Especially the 5 Nap Tow

Get model ~~boxes~~, Lulu
Micki.

Want 2nd hand hydrometer

at least 19 x 23 for

X Cabinet -

Estimate 4 ~~Acid~~ pal
Acid 65¢ acid 33¢ lb -
245 gal to 150 gal ~~Acid~~

Cost without repairs 27.58 C lb.

acid
10 mps

Kater figures show cost
Myrbane ~~cost~~ is 14¢ lbs
without repairs - probably

16 cents
Acid cost to convert 6.3

or 27.3 lb without
Repairs -

See if ~~cost~~ for top
Acid ~~part~~ so ~~slight~~
put in ~~out~~ cases -

Mixed Acids B+J 320,000

Gen Chem 350,000

3000 to Nitration

7 Nitration daily uses it

up - 4 for Acid given

3 Nitration 4500 daily for

Myrbane -

850 cc water with some 10 cc
phenol dissolved in it 195 grams
K₂SO₄ dissolved in it did not
salt any out but sulfuric acid
brought it out.
When the is excess of phenol dissolved
it salts some out but most of all
don't come out in 23% of amount of
all comes out in solution

Hurry Up

Fuel Oil -

Aluminum Pipe for shaft ~~for~~
Shaft & paddle for Quenching Pot - today

Extra Gear 17 ^{function} of 34 ^{for} Quenching Pot
62 shipped Saturday

Stand for Quenching Pot: of fusion
today

Main shaft assembly for furnace Pot
Monday

Extra Springs for Air Compressor
Friday

5 HP Motor for ~~Electric~~ Drilling
got the ~~motor~~ ^{motor} today

Wire Screens for Centrifuge

1/2 HP Motor for Stirrer & Motors,
wait Extra amount, got these
from McQuay-Norris, have asked
see Harlow

Cost 1 Andrew Pat Complate
\$1654 Complete without
Small + Large Tanks -

Ice making - storage (10) ay
Calc 1-163 - brass - 22 Barium
MgCl with answer also
Saturated Sol Callor MgCl should
remain liquid about 5° below

Huffman usually Sept 1 to June
1" 500 lbs starting daily
65 ends -

Huffman drinks can get acid
much lower after 10 years -

See if we have
enough ~~zinc~~ plates
for capacity -
19 250/200

Plung Na Salt old best done
2 grains spread out on a
4" Noatch glass

placed in Water bath oven
at 90 Cent

lost in 30 min 8.7 %
" " 60 9.2

This shows 30 min test is ok

Thompson - Water Cycle
Lecan's get say it
Ng + Cevendary on
Cycle battery -

Cost Substitution

275 gal of Benzol	165.00
3167 Lbs of Gum	35.47
426 Lbs 98%	3.36
	<hr/>
	203.83

3600 lbs Benz Na-	
2000 NaOH, 225 lb	248.83
2500 " "	260.08
3000 " "	271.33

If product 1650 Phenol 6 lbs gal. Benzol

Then	
2000 NaOH	15.30 Cont. 66
2500 "	15.77 "
3000 "	16.42 "

Have we got pieces
bells on all the studium
pots -

How about Bron feed

Average Cost Benzol with
my profits included in W. and W. and
471.83

Schedule -

100	65	
C 150-	40	
C 200	30	
B 250	25	160
Amb 30	33	220.
50	20	
75	15	

Cabinets on order

A 100	12.695	
C 150	9.187	5. old
C 200	6.190	51. old
C 250	5.000	3267 old 250
Amb 30	32.985	
50	31.67	
75	56.	
\$80- 144.	36.308	343 old on hand

Disc Machine
on order Aug. 5/15

100	6000
150	3458
200	3144
250	1675
	<u>14277</u>

See also ~~Joe~~ Moore

What good field plotting
Capacity —

WE dont take horns need
want to make clean
C complete, painted & all in
horn dept.

Waste Nitric Acid Myrbane
Spec Grav 1.605 at 23°C
10 grams has 17.5 grams acid
figured as H₂SO₄

Churling's Waste Jack
Oven as permanent paper
filter at any time plant
see folder —

Took 25 cc Phenol

22½ grains NaOH powder
added water till 125 cc
was total -

Put in 15 cc Conc H₂SO₄
25 @ 28 cc phenol comes out

yet blue litmus was not
reddened - put 1 cc more
H₂SO₄ in then it turned
Very red, no more phenol
came out ~~100 cc with 100 cc~~

25 cc phenol
22½ grains NaOH,
110 cc latest Centrifuge
acid - works ok -
28 @ 30 cc phenol

15 cc Standard White Salt
Sol 100 Centrifuge liquid
according to its strength -

The acid after white salt
in 4 no 200 cc to 100 cc work
must be reinforced by
15 gals 98% to 100 of
White salt acid - Wells

Standardize No 2 P.O. acid
tank with right amount of
98%

Experiment on a float wire of nickel
& cleaned each time,

Reinforce 100 cc white salt
acid with 15 cc 98 + 100
How much necessary neutralize
100 cc Standard alkali solution (W)

Microscopic Inspection

Titanium Alloys - 3 days in - Oleum

TPC #18. Slight Widemannstande figures. Some Cavities Fair

TPC #5 Slight Widemann Cavities Eaten Considerably at air line NG

TPC #11 (Wieder Sporing Eaten some, Only fair

Special Copper before put in acid unnumerable islands or isolated pieces like fungal caps trap after acid Eaten out worms but they are inactive. Cant see that it is acted on by Naked eye -

PFC #29 Scarcely any attacks no Widemannstande figures

PFC #10 Attached some Has Wieder figures shows pitting which are not attached hence it practical

TPC #3 ditto

#1 Round dots Very little attached practical -

TPC #15 Part stands up part eaten out - fairly deep no Wieder - fair -

In centrifuge acid
No 1 + No 29 absolutely
no action till the alkali
turn solution black

100% 2 Tank acid white salt in
+ 15 cc 98%
Took 20 @ 24 cc to neutralize
50 cc Dryly fused solution

(5600 lbs 1600 gal water)
+ Separation is not final
clear its slightly milky
+ bubbles at bottom its
practical -

100 white salt acid 20cc 98%
used 20cc of this to
Neutralize 50cc. Daily
Standard version liquid

Separation good but little
Milky at bottom but OK

100% 98 in the mixed acid
the mixed acid is white
from precipitate -

10% 98 in 100 white salt
acid. fair -
Used 28cc mixed acid
acid of 50 cc Alkaline
Standard acid -
seems to work good

~~Oblique Chloroform count
for Para
200 lbs fused acid daily
1000 " 98
100 " NaOH
200 litres 98% of 2504
all daily -~~

~~Lehr to more
speed indicators to
Centrifuges~~

6-C sq ft Coe has 1 inch thick

245 gal. Mixed acid }
150 gal. Benzol } 1500 Myrbane

Spec Grav Mixed Acid 1.710
Weight Gal 14.33 Lbs

3510 lbs used per Neutralizer
Average Cost $\frac{290}{380}$ } 3.35 Cents lb.

Acid 117.48
Benzol 90.00 } 60 Cents
207.48

13.85 cents lb Myrbane

Expt

Dalleys Benzenesulfonic acid

Benzol 200 cc
400 cc saturated sol
of salt. Cooled in ice water but
beaker too large didnt cool down
below 40 Fahr, it was very
thick so thick it piled up when
emptied into Vac filter, + had to
be patted to get it level.

Obtained 290 cc of liquid
Weight wet cake 388 grams
Treated this very cautiously
with Shell salt sol with vigorous
stirring, till all came out + 35°
Fahr brought out no more
No excess Shell salt

Weight White Salt Cake 67 gram
Tried this acid as neutralizer
on Dalby Fusion Cake
in proportions of 5600 lbs 1600 gal
H₂O - Gives 5cc Phenol aruda

But under phenol is 2 cc
of white flocculent stuff.

We shall have this trouble
from lack of acidity →
Otherwise works OK no white
sediment at bottom solution
Milky from slight floating
flocculent precip - This can
be worked with extra acid
2nd Neutralization

Used same shell salt acid
but to 100 cc added 10 cc of
98% acid. Works no better
3 cc of white flocculent under
the phenol 5 cc -

By using 16 cc of 10% the
flocculent stuff disappears
by adding 2 cc more. Making
20 cc
Salt acid solution nearly

Clears no flocculent, Phenol
sharp.

Hence 100^{cc} shell salt 10^{cc} 98%

20 cc of this solution does the
business - White 16 cc will
neutralize + give litmus full red
it requires 20 cc to dissolve the
flocculent + give sharp
phenol line
This makes 8.33% of 98%
to 91.67 of shell acid =

It is evident Dallys fused soda
is very poor stuff & that
above proportions must be
widely changed especially
when we use 3000 Soda to
3600 Benz Na salt.

100 parts water at 9°C 35.74 NaCl
at 14°C 35.87
25°C 36.13
40°C 36.64

Aq saturated at 15°C 1/207 spec

35 parts is coffee

600 gals water 4800 lbs
Requires 1680 lbs dry salt.

Think 1600 is practical -

Wash Benzol with Conc.
NaOH - 1/2 amount of
pure. Wash with absolute
alcohol hot, returning salt
out of value.

Kammerhoff

110 litres Benzol - 170 litres
98% acid 2.96 to 1 -
8 hours - Can make 3 sulfonations
in 24 hours 73.5 H₂SO₄ 26.5 Benzol

Fuse - 900 lbs Benzol with
720 lbs NaOH. - 1200 dia -
420 lbs Phenol. 7 to 8 hours
Can make 3 fusions 24 hours
44.45% Soda 55.55 Benzol -

Neutralize for Phenol 60 lbs
8 hours - Product 400 lbs about

Kings Calculations is that for
600 lbs Phenol daily we
should use 750 lbs Shell salt
64.20 -
1380 lbs 66 Baume (98%)
9600 lbs steam

King - for Amelin 3000 lbs day
450 lbs 40" Hef or
565 " 32 "

Acid Contracts

175 Tons month Mixed acids
59% H_2SO_4 - 2 must furnish the 98%
or 100 Tons month
26.27% HNO_3 2.9 c lb -
Runs to April 1st 1916

100 Tons 98% acid month 15
Dec 31 1915 all used in the mixed acid

150 Tons Bleum 20% 1.12 1/2 c
per 100 lbs -

100 Tons Bleum 15% 5 Frisco
get credit for 6 Silica Silica -

160 Tons month B+J 3.8 c lb -
Dec 31 1915

Grosselli for Kammerhoff
200 Tons month 1.50 100 lbs
98%

Phenol Contracts

Mitsui 1660 lbs day .50 c
Stem Hirsch 4000 " .76 c
Hoffman 76 c \$
Hayden 50 c

Soda Contracts get \$

Benz. Ma from Centrifuge 86th 1st
made weight 50 lbs Cubic ft
Dried 40 lbs

King says 600 gals water 43" high
1350 lbs NaCl.
325 gal Benzene sulfonic acid
run in till sludges 61½" high in
Tank

King says 600 gals Benzene sulfonic acid
1200 gals water
2700 lbs NaCl
Believe this is too much water,

King say with Frisco 15%
Plum need not use any
98% Use 3660 lbs
to 2000 lbs Benzol-

Shell salt Sol in 1887 pts water
at 15°Cent -
100 parts Water at 15.5°C
dissolve 200 parts shell salt
Shell salt,
I found 40 parts water
50 " Shell OK +
best solution -

Benzene sulfonic acid 86°Fahr 30 cent
1.470 Weighs 12.24 lbs gal -

Centrifuge acid 1.207 Spec 9
Weight 10.05 lbs per gal

White Salt reaction Tank with
Shore 11 gals to one inch
Shell salt tank 6 gal to one inch
Use liquid 36" high in both --

120 gals water 1200 lbs of full salt
dissolved gives 217 gals bulk
increase 81%

The Reaction Tank holds 400
gals To this about 60 gals
Shell salt mix is poured or
15 gals to 100 of acid according
to assay of acid

Dialonation 275 gals Benzol
put in during 1/2 hour therefore
30% gals Benzol added
Then 213 gals 20% Benzol
run slowly and the 150 gals to keep
temp just below Boiling Point of
Benzol + cooled from limit's
time till Benzol almost gone

King
Salting
600 gals Benzosulfon Acid
1200 " water
2700 lbs Salt should be 35% of
the water or 3360 lbs salt, $\frac{9600}{85}$

3600 lbs Benzol Na
2000 " NaOH
Temp 300 to 330

$\frac{33600}{85}$ - this
gives a little Ben
Salt when 2 Vol
of Salt sol to 1
acid mixed.

Took 29 minutes to unload
a Shuck Can

Took 5 min to run a box full of
Shuck at King's Shop --

Experiment Determine
increase in Volume of the
water after salivation
with Salt

9th Organic Chem 7 Vols
Cohen

Text book Organic Chem
Hallenman

Modern research in
Organic Chem, Pope -

Calibration of Salting Tank
13.3 gals per inch.

In the Salt Solution the
Salt is 25.37% of the
total weight (dry salt) -
not 22.1% as King has it -
King is too weak & don't salt out
well - Use 2 Vols Salt Solution
to 1 of Benzoinformic acid -

2 Vols is a little too much

2000 lbs Benzoinformic acid
requires 1487 lbs Salt.

Experiment 100 cc saturated
Salt Sol. 50 cc 98% Very
considerable Salt came out
had to add 65 cc more water
to make it clear again

from this it looks as if Kings
solution OK 22% Salt in
Salt liquid - not 25% as I make it.
This only has 15.4%

I put 25 cc 98% more in but
didn't bring out any salt
Strange! 25 cc more acc
Still no salt - ?

300 amp $3\frac{1}{2}$ V will work
Churchward self starter on
Ford - Worst condition -

Experiment

Took 100cc saturated salt
solution put in 25cc Benz acid
filtered out got 93cc liquid
then added balance of Benz
acid 25cc filtered out
73cc of liquid - This would
not dissolve any salt.
Then added shell salt very
finely out ~~the~~ shell salt liquid
got 62cc liquid. This amount
not dissolving any appreciable
amount of NaCl -

Raise y also to 20

Dalleys Salting Tank

20 gals per inch $\frac{1}{8}$

The average

After salt is in the volume measure
This volume should be measured
& then 2 Vals Salt used for
1 Val Benzene sulfonic acid -

480 gals water used - this is
28 $\frac{1}{2}$ inches -

Get desk lamp for use over
barny pot -

Get 1 foot ~~chrome~~ fan crushed
for soda -

Reg up electric pipe for
replumy soda -

first fusion 3600 zona Na
uncorrected for moisture or acid
38.3% Na - Not enough too
thick -

To correct 2nd batch of 3600
added 380 lbs, giving 3600
pure, this with 3000 Na
is 45.5% Na. Corrected -
or 43% uncorrected -

Started at 8 AM hot pat to
put in Na, it not melted at
8 AM next day 24 hours



It wants to steam & break
up to 1" @ 15" pieces -
then in + pipe steamed
temp 620m about 250°C whole time

Na₂SO₄ all melted 10 am 26 hours
steaming it did the trick.
Think good test for Sulfonation
to test if Benzol all acted on
is to use small dist. flask
beak put in 100 cc + dist. over
into a small CC glass -

On sulfonating the total
diminishes $\frac{1}{2} \times \frac{1}{10}$
213 0km 30 90% 275 Benzol

Started 10 am put in Benz Na
in No 2 fusion - 20 shovel
full at a time - 300°C
all in 12 45 - 2 3/4 hours -
got 100 lbs seal as beads
for plugging fusion
pats -

#2 fusion

Filtered of clear Sol from Quenching
#2 fusion, before the extra 6" of
Water was put in - The solution
is clear & very light yellow, the
sediment is very large, it is not
Fe₂O₃ but acts as if it was

precipitated Na Sulfate sulphate.

1500 gals was used in the
Quenching Tank

3600 lbs Benz Na & 380 lbs

Alum used to make up for
acidity & water in the 3600 lbs

The clear liquor filtered off
from the solids was neutralized
with Conc 98% Acid -

A white non cohering of lumps
of plaster appeared thick &
mushy - NE This solution
is also yellow too thick

after adding 6 inches in height
with the Quenching tank another
sample was taken This
had some sediment the liquor
with sediment was changed
from gray to brown by
the additional 6" of water
& sediment was very much
less - This worked pretty
good with centrifuge acid

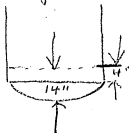
Taking the 1st Sol after
6" water added it may be
necessary to add an
additional amount of water
apparently 520 gals - but as
I am to filter the mud it &
add 2 waters extra it is
likely that no additional
water but this will be
necessary

The leeching tank is
6 ft deep 8' dia -

After #2 fusion was quenched
+ 6 inches extra water added.
9 found by measurement
that when stirrer was
running the water was
within 12" inches of the
top -

But when stirrer was
stopped it was 17" from
the top

Our large 20 ft settling tanks
has a rounded bottom + the
lowest outlet is 4" above the
bottom edge of the outlet
chamber



This probably holds 200
gals + will fill from 1st
fusion therefore the
bottom will be the outlet,

Soda Pump weigh 675 lbs
21 dia 30" long
3000 lbs is 211 gals

Notes made #2 fusion + Quenching

Goldwatts Sags Quenching
tanks 424 gals to fact.

This would be 3533 gals to incl
instead of 39 and 2 figure it.

There is 200 gals Stry somewhere
if we lost nothing in pit + assuming
208 solid gals NaOH, + 260 gals
Benz Na sand.

- Get piece of # fusion + dissolved
fewer quantity in water
see how much increases bulk

see about acids

NO 3 fusion⁷⁴ all in 2900 lbs
Na started at 12:30 pm
at 12:30 pm - ended 4:20 pm
ready for ~~Na~~ 3 hours 50 min

Shell salt liquor 12%

Centrifuge acid 15% acid

upto 160 gals in Spilling tank 20 gals
for 1 1/4 inches of tank
that 1 1/2 -

50 cc water 50 cc 98% H₂SO₄
when cold contracts
40%

Alkaline Sol from NO 2 fusion
without extra 16" of water
put in Ammoniating tank
is 1.215

Waste Nitrating acid
78-3 acidity -

50 cc White Salt acid #2 tank
+ 50 cc Waste Nitrating
acid - This solution

This solution reacts with

100 cc #2 fusion becomes
giving 10 cc of acid
to have + good -

38 cc of tank used -
will make certain -

This combination gives 46%
acidity -

Distilled from NO₂ Tank
Substituted with NaCl. Good
separation got 7 @ 7¹/₂ cc
Phenol from liquor #2 fusion
instead of 10. Balanced here
got, it is practical -

Hardly of NaCl salt acids
12% Large amount white
precipitate settles at bottom.
15 cc -

If took 110 cc of acid with
NaCl in to neutralizing the
150 cc cel. kernel solution -

CO₂ #2 fusion liquor 100 cc
Requires 2 hours 15 min to
Neutralize got 11 cc phenol

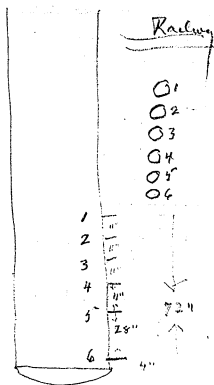
With 100 cc #2 fusion liquor
nearly neutralized with
Nitric acid (acid -
fused) with CO₂ - took
about 1 hour 20 min can

be done in one hour probably
less. Using CO₂ prevents
action of HNO₃ on phenol

Neutralized 100 cc #2 fusion
liquor with 98% acid
1/2 Water 1/2 acid by bulk

Took 30 cc got 10 cc Phenol.
This test is to compare #2
with #3 just fused -

Test of #3 fusion gives 10 cc
& is about the same as NO₂ fusion
it may be 10% - There is considerable
mud probably same amount as
#2 fusion -



#2 fusion in tank 4 am, 14th -
 put on top of No 2 fusion -
 OK No 2 cock at 10 10 am.

100 cc #1 Centrifuge (Acid)
 Requires 10 cc Shell salt liquor

In neutralizing - for every
 gal of Alkaline liquor
 add $\frac{1}{2}$ lb of salt, then
 neutralize.
 This is about 1000 lbs per
 fusion.

Neutralizing Tanks coverages
 $1\frac{1}{2}$ for 20 gals -
 6 deep, 6 dia -

2000 gal alkali in 1 fusion
 Neutralized in 4 sections
 of 500 gals require
 28" in tank for alkali -
 + about $39\frac{1}{2}$ of acid
 250 lb salt

Setting Tanks after measuring
4000 gals. fills 2 Tanks
Leaving 2 ft on top of
Each Tank 7 hours will
settle.

Water 48 cc 13.5 gm NaCl
increases from 48 cc to 52.5 cc
9.15% increase bulk

Fusion Kettle (emptied)
then $1\frac{1}{4}$ gal hole
in 23 inches -

Caum - Very ~~ch~~ heavy
jackets for ~~gal~~ tanks -

Order the other neutralizer
Rig rod with light on for
fusion pots.

Gauge glass on
neutralizer

Caum, design another
Still. 700 gal capacity -

Kent say 8 ft dia Tank

376 gals per ft capacity

net 474 gals per ft

Gal dia / vol. of 8 ft 56"

3 ft 52.88

4 ft 44.88

5 ft dia 46.88 Gal

6 211.51

8 376.01

453⁴ mly to lb

$\frac{7}{9}$ is right factor to sq a circle

3785 cc | Gallon

Atomic weights

Chlorine	35.4
Copper	63.6
Iron	56
Lead	206.9
Magnesium	24.3
Na	23
Sulphur	32.1
Zinc	65.4
H	1.01

~~Get Carlos of ...
... for ...
Pit Exhaustor type of
Neutralizing tank~~

new ...

0.01

The white sediment which settles out all have phenol tangled in it quite considerable - Nothing but Benzol recovery could work on this or possibly Benzol will get entangled also but its burden of phenol will be light.

We shall lose considerable Benzol by entanglement.

First thing get 5 or 8 ton white salt for launch & or for Cape ...

Stuff is down off big Benzol recovery from #1 ...
Very thick Must - Cant
Separate with Benzol. Benzol makes Emulsion & don't settle out
Must get rid of it -
There isn't a great amount of phenol in it -

Started sand filter 4:55

Very thick mud -

To do 6 fusion only got

1 hour 36 min to filter 3 times
dry 9 am - put $3\frac{1}{2}$ " water on
at 9:15

18 Filter had 2.75 gals one
Change

300 gals Mud to a fusion

Expt 100cc Mud from 2nd + 3
fusion Very thick took 100cc
Mud took 1 hour 20 min to
settle $2\frac{1}{4}$ cc in 100cc glass

Poured in filter paper funnel
18 min 28cc off - add Ag
to mud point left

in 30 min more got 35cc
added Ag - 2nd time,
27cc in 31 min -
added Ag got 26cc in
27 minutes Total 1 Hour
48 min - Total water 116cc

Possibly only 2 waters necessary
but think 3 is best as last
one stays in -
Leaving only 78^{cc} of which
28cc is pure solution
of 2nd water displaced
balance of 35cc - this would
be 63 sol fairly pure
116 total, probably 60%
strong -

Therefore 1st coming
followed by 3 waters -
then clear out,
last water need not be
so much - as large
quantity mud decolors

The mud from above filtering
of 100cc shrunk to 1/3rd yet
when 1/2 liter water put in so
300cc water + mud it settles
Very slow 100cc in 5 min

Sand filter started 5 pm -
 dry at 9:15 - put water on it
 to 1/2 inch of top of sand out
 9:15 pm -
 1st water absorbed dry at
 12:22 am put on 2nd
 water 1/2" from top
 - Dry 2:58 - put 3rd water
 and went home - 2 h 36 min
 took 2nd water

This has been back 12 hours

180 gal. used 6 fusions

Requires 55 minutes -

4 x 6 - Reg. 3 cycles 1st time

2 hours 42 min -

On + dry in 29 min

4	1st	aq	"	65	"
2	aq	"	50	"	
3	aq	"	15	"	

Small Vac filter, 6'6 inches
 area. Mud filled to brim
 Required for dryness 6 minutes
 Filled to brim with water,
 Required 10 mins to go
 thru - filled again,
 out in 5/7 min -

Holes put in that practice

ON 1130 AM

#2 The 1st (feller used),
is now load with $\frac{1}{2}$ mud
 $\frac{1}{2}$ coals - on 1130 AM -
its within $\frac{5}{8}$ to $\frac{3}{4}$ of the top edge
w/ the aff. - Used 14 gals
Mixed liquid to clear crystals.

Think to allow allow too
thin - 1 Ag 2 mud is
probably more to check

2+3 at 11:45 pm. 160 cc minute
5 pm ^{3 months} 5 hours 30 min
at 5:15 pm ²⁰⁰⁰ water.

#1
Note at 3:20 ^{pm} bottom look
Run clear, same as #2 zone.
 $\frac{1}{2}$ charge to clear -

and stirred mud up
with hose - Very little
sediment - it gets dissolved
in air by stirring -

ON 11.50 AM 13 (rems)

#3 loaded with $\frac{1}{4}$
water. $\frac{3}{4}$ mud - #3 never
used & is dry.
1st pair dis appeared on 1150 AM.
2nd pair did not cover bottom
3rd covers all but one high spot
4th pair still shows high spot was
fill very slowly
5th pair just covers
9 pails $\frac{1}{8}$ gals - $\frac{3}{4}$ " of edge
filled at 12:45 pm
at 4 pm only mud -
Put on a little coals $\frac{1}{2}$ "
5:45 pm nearly dry

Took 100 cc mud, 1 cc filter
weight cake 76 grams 76%

50 cc mud 50 cc water
weight cake 14 grams

25 cc mud 75 cc aggr
weight cake 61 grams

75% mud 25% aggr
weight cake 46.3

50 cc mud 50 washes - then washed
with 50 cc aggr weight cake 11 gram
after three washings 21.8%
Net water 2.07 grams

75 mud 25 washes washed with
50 cc wash weight cake 28 grams
37%

As only 30-40% was
taken out of #1 tank
with 2 divisions in it
very water rich also
Note the capacity of Gattous
bulge is "1" the tank is
125 gal - It shows
we need handle
75 gal per division or
450 gal of mud for
6 double divisions -

7 gals mud 7 gals water
4 times daily 15 pails
will do the job

big storage tank sets
fronted full length
Now about air - spec of it
was tested visibly hoses to
pump, is fit for lead oil

3600 lbs Benz Na should
give out max of 7701 gal benzol
2411 gals benzol

Our tests show spec to 100 cc of
alkaline sol y 2 cc exp in
Benzoling

We should get for $2\frac{1}{2}$
Neutralizing tanks full
100 gals from floating + 25
gals from benzolating
Total 125 gals -

A loss of 21.87 gals -

275 gal Benzol Sulphonation
should give 4632 lbs of
Benzene sulfonate soda

3600 lbs Benzene sulfonate Na
should produce about 7 lbs per gal
1554 pounds

186.6 Gals

2 Neutralizing tanks charging
43:3 gals base settling tank
on basis of the liquid in
Quench tank

If Quench tank holds 2000
gals should get 9 cc for
Every 100 cc liquid
approximately 245 gals Benzol offered 4100 2415 lbs
about 3600 lbs Na Salt 1890
2000 gal - 11 cc per 100 cc liquid

Rec if I ordered the 3rd Egg
for Amelin Pats -

Boyl Glasser for Amelin
Pats -

1 Gal Benzoin should make
16.84 lbs Benz Na Salt
Theoretical -

2.316 lbs Benzoin should
on basis of 1 for 1 produce
1 lb phenol

Each sulfonation 1 to 1.6 min
should get up 2000 lbs
phenol -

From rough Eggs at Laband
the shell salt residue is
about 11 @ 12% of the
Benz Na Salt obtained

100 Benz Na
11 @ 12 Shale Salt. }

Fine Crystals undried white
NaCl from Newark Beach
about 3% moisture -
OK -

Kammerhoff liquor after
Neutralizing Contains in
25 cc 3/8 mg phenol
26 grms per gallon -

24000 Records daily

without using 20% of it

Shellac	Daily	14000	125,000
Para. B+V	25000	1100	13,200
Phenol	4600	80000	960,000
Wood fibres	16000	36400	2,300 Ton

probably more -

Titanium alloys samples
only one that stands
California Acc. for 2 weeks

is NO1 + 29 TPC

NO1 is too brittle to
roll but 29 can be rolled
like Porax with proper
annealing - its
ideal for pins -

It's ok to use it in
Manufacturing ~~Brackets~~

Castner Electrodeic Alkali Co
Mcquay falls

Tell Kammerhoff about beans
from sludge tanks take
from Caps - keep sludge
tanks full

Draw off 50 acres or
so at a time - start pump
20 or 30 feet away

Filling sediment from big 6
Tension liquid tanks -
No 2 1/2 mud 1/2 water -

Mud from area of 6" sq
less than 1/2 thick gives 4.5 ft.
gross yield 162 tons per pan
5 Runs daily 910 tons
18 pans 32 lbs lost

With 2 of mud 1 of water
loss 50% more 48 lbs
This is good enough - hard 1/2"
water like excellent to crush out

Continued
Therefore filter pans will probably
handle mud from 6 fusions -
when mixed $\frac{1}{2}$ mud $\frac{1}{2}$ water or
stirred & after getting dry (i.e.)
no water noticed on top of mud
with $\frac{1}{2}$ inch water to which
this is gone because much
& need for fresh charge

WE should have a
6 ft Pultraling fan
at Bengala camp place

Our acid for neutralizing still
contains 4 grams Benzoin sulf
salt in 100 cc or 152 grams
per gal - which stays in at
ordinary temp but comes out
by chilling in brine with
the floating in it 35° Fahr

This would be 4000 lbs Benzoin salt
per 6 fusions - or 1800 lbs
Benzoin sulf salt daily
or 1 lb per gal Benzoin -
Evidently tanks should have a
water jacket to give circulation

1 lb Benzoin theoretically produces
1.205 lbs Benzoin sulf
8.796 lbs per gal Benzoin.

275 Gals Benzol
213 " 20% Alum
30 " 98% H_2SO_4

Shrinkage 11.2% = 58 gallons

4065 lbs Benzene Sulphonic acid formed
56.2 gals water formed

1492 lbs salt required to convert
the Benzene Sulphonic acid to lbs Na Salt

1399 lbs (110 gals) H_2SO_4 equivalent to
98% H_2SO_4 left

1656 lbs salt required to convert
the whole of the remaining
acid into Soda Salt,

1492 lbs salt produces 926 lbs HCl
whose neutralizing capacity equals
the original

1656 Salt gives 1028 lbs HCl

⊕
Go down to Saps (with race
How we can get more resin
& about door to packing case
room

600 gals water, 1350 lbs salt
put in (Kemp) increases
back to 1655 gals

511' put in for 1 Sulfonation
shrink 11% making 456 gals

If figure 446 gals sulfonation
5300 lbs water, 1492 salt
increases to 722 gals liquid

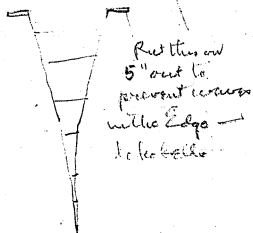
This supplies the right
amount to convert all the
Benz acid to Na Salt,

2 vals salt 500 Cals for 170 gals
Extra - This neutralizes some free acid

allow for
approx. this is 210

Meadcroft ⊕

Warm shellac people use
will support TN with Rosin
in + prices should be for
Rosin free. Good.



Get tank to settle Mybane
in —

Kammerhoff says in his Guide
Phenol 17% to 18% or
2% loss in still
Net after distilling 79@85%

1.264 Crude + 2% acid in

Cone Sul Benzene sulfonate
Soda powder with salmeter
Sul salt gives the salting
out or peckup - even cold in
ice chest.

Order tank for phenol

2 ft 10 high

2 ft dia for separating

30" high 48 diameter

Round bottom pipe - bottom.

Ask Meadcraft if any Soda
Contracts are 100 + 125 from Sabay
if so its good for 12000 lbs phenol.
daily -

get 3 books like this -
Hoffmann ~~Wants~~ Speer
our Myrbano -

get 3 more shafts & paddles
for Anilino pots -
3 more for Myrbano pots
1 extra for Nitroking (Columbia)
1 " " Alstair (Columbia) not
enveloped -

Write Tom Chemical Co
Midland Mich
Refr Fused Magnesium Chloride

Filter the Myrbano's -

Send over to W. L. Horn of
1 bottle each
relatively clean
for Hoffmann

The scandium from desalting
Crude phenol is
NaCl Na₂SO₄ Na₂SO₃ &
Cl₂ Fe with some
phenol - There is good
amount Fe, perhaps one
% Fe₃

1947

Rev -

The ~~20~~ ~~4~~ ~~papers~~ ~~at~~ ~~the~~ ~~time~~
are not spread by Inspector
right, not at all, very fast.

See letter about preparing
letter press plates -

Moore's kind, more

Repair ~~gals~~ -

Letter Harry ~~up~~ ~~papers~~
Rating 8 X 3 +

More Cans Mr. Broy

Get longer for slush can

Meadowcroft - find out
how many letters were
sent out to find out
about several men &
how many seasons read
WE are funding out
lots of special reports
+ No such place -

Try Dimethylamine Sulphate
or base also Phenylhydrazine
& Quinoline in test. Best call
to note polarizations of Aug. Curie
Chem. Abs. 1915 205.61
Aug 10 1915 -

Chem Abstr Aug 10 1945

P 2141 -

Mason - see apparatus
for determining Redwood
hydrocarbons in *Juniperus*
grain -

Polymerized Vinyl Esters
such as Vinyl Acetate,
Vinyl Chloroacetate by heat or
ultraviolet lamp solid transparent
Substance like Celluloid
formed first proof of Cellulose
Hermann Pat 2,811,687 July
4 1953 - Chem Abstr
Griesheim - Elabron -
Chem Abstr Aug 10 1945

See of 5% Para polymers Gelatin -
ditto Sugar - Glucose -

Christensen reports 1 extra
methyl methyl tank
Nalified Spum

0000000000

Meadoralt - Benzol
Tank Car for water design
service - Lease one

Ask W. G. what he counts
when he adds the extra
300 lbs to the 3600 lbs of
Benz Salt,

Did I order 3rd Egg
for Amine pat.

Get thick mud / no filter
then inside water. Conc
filter then wash shell
Salt see if any more
Benz Ho. ~~shell~~ -

Overhaul 46 inches
after change 9 1/2 inches
higher add 4" more
of water -

Kammhoff / look carefully
to packing on Benzohy
device - No switches or
Waters around

222 Vale find out a.c. /
#2 Tank acid -

Think we should raise it
with 98% till.

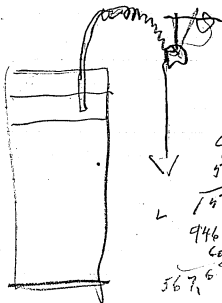
50 cc instead 163 cc
neutralizes 100 cc. alkaline -

Fry our neutralized Benzohy
liquor with Red Cast Iron
also Buffalo Iron -
also Copper -

check feasibility of 2 or
more sections Benzohy.
Big 4 the 2 round ones of
Buffalo iron wide flanges
Cast iron plain sections
Could be loaded & forced
off -

Find Salubridly Phenolate Soda

2nd filter started clean
830 am



946
✓ 567
L 1413
946
567.60

1920
11520
37
8064
34560
43624

4450 | 426240 (976
4850
2124
1880
324

600
198
41290

45
18
42 L

3698
80

2888

23040
1464

843
320
320
20
92
2304
3241761320
4324000
81000

1550
9300
11500
10800
15000 (14
10800
42000

$$1 \frac{1}{4} =$$

$$30 \ 4 \overline{) 900}$$

$$\underline{225}$$

$$5$$

$$\underline{185}$$

$$40$$

$$1725 \overline{) 45000} \quad (2)$$

$$28$$

$$\underline{28}$$

$$224$$

$$56$$

$$4 \overline{) 789}$$

$$\underline{1796}$$

$$980$$

$$0$$

$$0$$

$$256$$

$$0$$

$$46$$

$$450$$

$$1$$

$$1725 \overline{) 39250} \quad (221)$$

$$34$$

$$46$$

$$450$$

$$1$$

C1493

1420
380

2000
1200
3200

1120
215

701335
3786560
3312
7312

1415

1500

1200

1400

3500

1200

500

1000

1000

400

400

400

400

400

400

400

400

400

24

9.6 1920

121120

25

12

9.6

114

450

2000

760

600

400

400

400

400

400

400

400

400

400

400

400

400

400

1415

460

340

340

340

340

340

340

340

340

340

830 shy
192
638

1700

106

55

1000

1700

1800

1600

100

9600

1600

106

1700

1920 | 4600 (24)

3840

7600

6000

4 | 1920

480

1440

600 shy

July 22 Kemmerer
 4000 lbs production 27 cents
 6000 1 Cent lb for all buyers
 4000 - Benz & Co
 also 1/4 of production below
 27 cents -

$$\begin{array}{r} 684 \\ 288 \\ \hline 547 \\ 150 \\ \hline 622 \end{array}$$

$$\begin{array}{r} 1500 \\ 610 \\ \hline 630 \end{array}$$

$$\begin{array}{r} 1540 \\ 300 \\ \hline 1622 \\ 307 \\ \hline 307 \end{array}$$

$$\begin{array}{r} 1536 \\ 96 \\ \hline 1536 \end{array}$$

$$\begin{array}{r} 1500 \\ 50 \\ \hline 1550 \\ 100 \\ \hline 1650 \\ 100 \\ \hline 1750 \end{array}$$

$$\begin{array}{r} 3600 \\ 3000 \\ \hline 6600 \end{array}$$

$$\begin{array}{r} 30000 \\ 20000 \\ \hline 50000 \\ 30000 \\ \hline 80000 \end{array}$$

$$\begin{array}{r} 4554 \\ 26 \\ \hline 4580 \end{array}$$

192
1536

3600
2000
5600

2240

2232

3950

1975

3960

3357

3357

9

144

4000

$$\begin{array}{r} 1296 \\ 84 \\ \hline 1776 \\ 17 \\ \hline 1793 \\ 34 \\ \hline 1827 \\ 57 \\ \hline 1884 \\ 79 \\ \hline 1963 \end{array}$$

100

4000

36

17

54

35

87

33

17

33

56

32

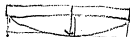
17

224

32

54

657



4 1/2
 5 9 200

$$\begin{array}{r} 102 \\ 8 \overline{) 816} \\ \underline{816} \\ 0 \end{array}$$

$$\begin{array}{r} 86 \\ 85 \\ \underline{425} \\ 680 \\ 720 \\ \underline{736} \end{array}$$

$$\begin{array}{r} 73 \\ \underline{35} \\ 38 \end{array}$$

$$\begin{array}{r} 3675 \\ \underline{2205} \\ 2570 \end{array}$$

$$\begin{array}{r} 257 \\ \underline{62} \\ 514 \\ \underline{542} \\ 154 \\ \underline{154} \\ 0 \end{array}$$

40

60 ft - 2 fms

$$\begin{array}{r} 480 - 57.8 \\ 220 - 64 \\ \underline{30} \\ 2312 \\ 8613468 \end{array}$$

66 gal -
 per fms
 1900

$$\begin{array}{r} 3699 \\ 72.25 \overline{) 3699} \\ \underline{80} \\ 57800 \end{array}$$

$$\begin{array}{r} 2310 \\ 57.8 \overline{) 13860} \\ \underline{35} \\ 1617 \end{array}$$

$$\begin{array}{r} 2890 \\ 1734 \\ \underline{8} \\ 20230 \end{array}$$

202

$$\begin{array}{r} 64 \\ 80 \\ \underline{120} \\ 1616 \end{array}$$

4 months 6 1500
 2 15
 1550 4 24 1 9600
 76

Diamonds 40 5
 Mech. 1460/3526-

4600 (7)
 24600
 24000
 24000
 Truck 78
 down at clearing 100-

1150
 2300
 1500
 48
 24
 192
 96
 1150
 5600
 50/420.80
 400
 4600
 3200
 3200
 3200
 3200

March 455
 18 4800 180
 20 36 31%
 30 112 - 144
 450 76000 1799200
 11 36 45000
 80 90000
 258 135000

28 ft
 11 93000 4
 28 744000
 28 93 744000
 30 112000/289
 560 112000
 48 9000
 44 8000
 3 8000

51 48
 408 29
 31 52
 124 46
 734 49
 50 3200
 3200
 2400
 48 144
 29 91
 52 91
 46 44
 49 44
 31 44
 24 44
 24 44

**Notebook Series -- Pocket Notebooks
Notebook, PN-15-07-22**

The dated entries in this pocket notebook cover the period August 1915-January 1916. The book was used by Edison to record ideas about business matters, experiments to be tried, and other tasks to be performed. Some of the entries have been crossed out. Others appear to be clean transcriptions of entries from PN-15-07-27. Many of the experimental notes pertain to chemicals. Also included are notes on battery cell regeneration, disc records, and recording experiments with various arrangements of musicians, instruments, and funnels. Notations regarding a request for a revolver without rifling and for information on submarines, along with references to Adm. Joseph Strauss of the U.S. Navy, indicate the beginning of Edison's work on war-related experiments.

Among the business-related entries are notes on daily output at the benzol plants in Johnstown, Pennsylvania, and Woodward, Alabama. Also included are entries regarding phonograph orders and daily manufacturing schedules. At the end of the book is a notation concerning an agreement of July 22, 1915, with H. H. Meno Kammerhoff, supervisor of operations at Edison's chemical plants in Silver Lake, New Jersey. Other Edison employees mentioned in the book include experimenter Charles T. Dally and chemist Victor L. King. Chemical manufacturers and suppliers mentioned by Edison include Binney & Smith Co., Butterworth-Judson Co., and General Chemical Co. The pages are unnumbered. Approximately 150 pages have been used.

Spent Nitrating Acid

Lead	0.00-	} gals
Iron	0.08	
Acidity	74.93	
H ₂ SO ₄	71.80	
HNO ₃	3.13	
Oil Myrbane	Trace	
Sediment	None	
Specific Grav	1.635-	
Weight	1433 lbs to Gal (acc)	

Johnstrum Plant 1220 Gals Day

Loss	390 Gal	33%
Benzol	403 "	38
Toluol	183	15
Xylole	183	15
	<u>1156-</u>	

balance unaccountable loss

Balanceable 769 gals

Approximate Estimate

Woodward,	2000	gals	
Benzol	1200		60%
Toluol	120		6%
Sol'nap	130		6%
Loss	<u>560</u>		(28%)
	2010		

wrong 38%

Aug 30 1915

1450 gals saleable,

Expt -

48 cc aq. 39.6% white salt

13 grms salt.

40 cc Sulfonated mix

Vac filtered

Cake dried 24.4 grms

White S. Cake dried 16.0 = 39.6

Yield 1.01 40.4

48 cc aq.

13 grms salt 27.6% White salt

30 cc Sulfonated mix dry

Cake 23.0

White salt 8.8 = 27.6

Yield 1.06 31.8

48 cc aqr
 13 grms salt. 18.3% white salt.
 20 cc Sulfonated Mix.
 Dried
 Cake weighed 16.5
 White salt $\frac{3.7}{20.2} = 18.3\%$
 Yield 4.01

Above experiment is rough as
 Cake material not centrifuged,

From this experiment

48 cc aqr
 13 grms salt.
 20 cc Sulfonated Mix is
 best, this equals

600 gals water 4800 lbs
 + Salt 1300 lbs

The salt increases bulk 9%
 654 gals
 Equals 2.75 Vol To 1 Vol Benzoid
 mix - 653

Miniature lamp single leaf graphite block
Cut, Capton range 11.5 inches to semi transparent

Buffalo Foundry & Mfg Co

#6 grade Cast iron OK for

Oleum - no loss -

In Centrifuge acid in 65 hours

Loss 0.42%

#2 = in Centrifuge acid 0.42%

King notes

If charge of Sulfonated mix is
200 gals then not less than
400 gals water + 900 lbs of
Salt should be used, 22 3/4%

I suggest 500 gals water
1150 lbs salt be used first + if
found OK use 400 gals water
+ 900 lbs salt,

I don't think it possible to go
below this limit

We always used 2 Vol of Salt
Solution to one Vol of
Sulfonated Benzol mix

One inch sgr 1/32 thick immersed
in Centrifuge acid so air had access
Copper lost 60g milgrm
Brass " 90 "
Nickel " 65 "

3 day test

Quenching Tank 8' dia 6' deep

King address Dr Victor King

Monki Ave + Woodridge Sts
Woodridge NJ
Telephone 352 Rutherford

De La Vergne Ice man says,
icing troubles on cans + pipes
stopped by using brine 23 Baum
Dally had at 10 Be now 13 Be

CaCl comes in drums 400 lbs
got on hand Aug 10 5 Drums

German Pat 281,432.
Crownstone.

Myrcane Extracts all the Anilins
from its Water Solution?

In fact The Nitro Compounds
Extracts from water all the
reduction products made
from them - This is general -

Scheme for black dye -
Stockings dyed in Albumen
& dyed then in H₂SO₄ or H₂SO₃
then quick in water washed
free of acid then treated
formaldehyde -

Yale Lab fusion.

108 grms factory Benz Na
75 grms NaOH.
Required 15 min fuse NaOH.
15 " put in Benz Na
30 " after -

Temp 275 To 290 C -
Yield of 1/2 of the Cake
44 cc + 6 cc from Benzoling
50 cc Total.

600 gals Water
1350 lbs NaCl when dissolved
increases bulk 9.1%

If fusion liquor is filtered
& neutralized with 9's acid
no iron shows gives a milky
liquid if too much water used
white flocculent tangles on bottom
side of floating Phenol (11)

Investigate, Latest Benzoesulf. Na.
not all Soluble in water or acid
but Soluble in Alcohol.
Which if diluted with water
throws down crystals leaflets
What is it

Get solubility of Benz. Na.

* In our Salt Sol used red + also
in Conc NaCl also in Conc
Na₂SO₄ a mix of both.
Later 1 gm dissolved in 50 cc sat NaCl sol

Took 2 grms damp salt from
Centrifuge put in drying oven
for 2 1/2 hours 208 to 212 °F
lost 386 milg - 19.3%

After 12 hours in air it
reabsorbed 193 milg or
50% reabsorbed

*
Saturated Solution Sulphate
Soda 80 cc dissolves one
gram Benzoesulf. Na.

Strange. Made strong Sol
of Benzoesulf. Na. poured a
little into both saturated Sol
of Sulphate Na + NaCl
No precip. added
Shale salt No precip. cooled
by hydrant water. Only
Na₂SO₄ showed traces of
precip. - This shows
Benz. Na. quite sol in both
Solutions of course they won't
hold much but I think
50 cc will dissolve 8 or
10 grms at temp of hydrant
water. This is contrary
to * Experiment on head
2 page Investigate

Cumeroe Resin can be made
from solvent Naphtia by using
98 Acid in very thin streams
Violent agitation + Cooling Coil
in solution + keeping it below
40 Centigrade

Investigate

See if Cumeroe resin condense
with $6/4$ + Para -

Also if it will mix with Rubber
+ be vulcanized OK + with some
Hot 33% KOH.

Want 2nd Hand Hydraulic
Press at least 24" X 30"
for Amberola Cabinet Expt

Acetanilid has to be dissolved
in H_2SO_4 + then mixed acids run
in. As we use 4 acid to 1
Acetanilid it looks to me
that the waste acid could
run a second batch by
just adding 42 Nitric -

Or use the waste acid to
dissolve the second batch
of Acetanilid -

Long fibre Asbestos grafted
+ sold for packing by
John Manville
In Oilum $3\frac{1}{2}$ days swelled
to double its original thickness
is attacked but it's OK for use
In Centrifuge Acid only swelled
 $1/3rd$ + not attacked at all.
in fusion liquor OK not affected
2157

850 cc water with 10 cc
phenol dissolved in it +
195 grams K_2SO_4 added
didn't salt out any phenol
but when saturated it came
out
When there is excess of phenol
dissolved it salts some of it
out but last part don't
Come out on 23% + I doubt
if it all comes out on saturation

We should have one extra
arrangements for our different
Motors Important

Especially $\frac{1}{2}$ " HP Sturtevant See McGovern

Cost one Anilin Pot complete
without tanks
\$1,654

In My Cold storage use 22.13°
CaCl₂ 1.163.
MgCl₂ will also answer
Saturated CaCl₂ or MgCl₂
should remain liquid at
5° Fahr

Benz Na. 2 grams spread out
on 4" watch glass lost
in dryer at 90°C
in 30 min 8.7%
in 60 " 9.2
This shows 30 min will do for
Quick test.

Have we glass bells on all
Anilin Pots?

Cost Benzol Woodward 60 c
with my profits out 47.83

Phonographs
Aug 5th 1915

Mfg Schedule -

	Daily
# 100	65
150	40
200	35
250	25
Stmb 30	33
50	20
75	15

Cabinets on order

A # 100	12698	
C # 150	9187	5 on hand
# 200	6100	51 on hand
# 250	5000	-3267 on hand
# 80	144	343 "

Disc Mon order Aug 5

# 100	6000
150	3458
200	3144
250	1675
	<hr/>
	14277

Christensen want Jack
Quinn - as permanent pipe
fitter -

1 & 29 in Titanium Alloy
Cos Cataloque is not in
the least attacked by
Centrifuge Acid # 29 can
be rolled like brass # 1 cant

150 Gals Benzol
245 " Mixed Acids
give 1500 lbs Myrbane
Average Cost 3.35 cents lb
3510 lbs per Nitration.

Acid # 117.78
Benzol 90.00
\$ 207.78 13.85 c lb -

Water saturated with NaCl
at 15°C has 1.297 spec g
35 parts NaCl to 100 parts
Water is safe saturation

600 gals Water 4800 lbs
1600 " " 12800 " dry
Salt, 1600 OK but its
doubtful if Kings proportions
are not better

Kings Calculation is that for
an amount of 6000 lbs phenol
we need only 750 lbs Sebell
Salt

1360 lbs 95% acid
9600 lbs Oleum 20%

For Anilin Sebell daily
450 lbs 40 HCl or
565 " 32 "

Weight of 1st old heavy Na from
Centrifuge dried weight
40 lbs per foot lump -

King says fused 15% Oleum
don't need any 95% acid use
all Oleum -

Sebell Salt sol in 1.857 pt
water at 15°C 100 pts water
at 15.5°C dissolves 200 parts
Anilidams I found 40 pts
water dissolves 50 parts
Shell salt + is OK 66% sol

Benzomesulfonic Acid mix
at 18°C Fair 30°C
spec g 1.470 - weight 12.24
lbs gal -

Centrifuge Acid tank
10.05 lbs/gal 20

120 gals water 1200 lbs
Shell salt dissolved gives 217
gals increase of 81% in
bulk

Shell salt Reaction Tank
with stirrer 11 gals to one inch

Shell salt Tank 6 gals to one inch
Use liquid 36" high in bath

Reaction Tank holds 400 gal
to this about 60 gals shell salt
solution used dependent upon
the assay

Oleum Spec 9
1.875.

Solubility of Salt NaCl
100 parts water dissolve at

9° Cent	35.74
14° "	35.87
25° "	36.13
40° "	36.64

Saturated at 15°C. Spec 9 1.207

* Kammerhoff

110 Litres Benzol

170 " 98% H_2SO_4 2.96 to 1
Requires 8 hours to sulfonate
Can make 3 sulfonations 24 hour
73.5% H_2SO_4 26.5 Benzol

fusion. 900 lbs Benzol Na
720 " NaOH.

Requires 7 to 8 hours. can make
3 fusions in 24 hours
44.5 Soda 55.55 Benzol Na
Produces 420 lbs phenol.

Kammerhoff

Neutralization & settling requires
8 hours, Get about 400 lbs Phenol

Sulfonation

275 Gals Benzol put in during
half hour then put in 30 gals
98% Then add gradually
213 Gals 20% Steam at
such a rate that the temp does
not exceed boiling point of
the Benzol. Test soon time to
time for disappearance of
the Benzol.

Takes 20 minutes or more to
unload a solvent can

Takes 5 min to fill measuring
flush box at Centrifuge

Fusing

We use 3600 lbs Benz Salt
with an additional amount
added to correct for acids &
moisture. Generally 300 lbs
extra. We use 2900
lbs Soda. Temp of fusion
kept 275 to 285 Centg.
Run half hour after all the
Benz Ma is in.
Last 6 wheelbarrows 150 lbs
each put in more slowly
to prevent boiling over

Quenching Tank put in
1600 gals then Tap pot
after running 3/4 hour with

Excesses add 6 inches more
water run $\frac{1}{2}$ hour & then
pump to big settling tanks

Calibration of salting Tank
13.3 gals per inch

Expt - 100cc Saturated Salt
Solution if we add 50cc of
48% H₂SO₄ very considerable
Salt comes out Had to add
65cc more water to make it
clear again -

From this it looks as if Kings
Solution is best with 22% Salt.

300 amp 3.5 Volts will work
Churchwards Self Starter
on Ford under worst
Conditions

Dally's Salting Tank

1 $\frac{1}{2}$ inches per 20 gals -
After salt is dissolved,
The Volume increases 9%
This should be measured
then One Volume of Benzol acid
used with Two Vols of Salt
Solution.

480 Gals water used this
comes to 28 $\frac{1}{2}$ inches of salt
put in it will go to 30 $\frac{1}{2}$ inches
or 44 gals more making
524 gals This will take
Care of 262 gals Benzol acid

With 275 gals Benzol 243 acid
we have 518 gals but it
shrinks 112% in sulfonating
leaving 460 gals Benzol acid

230 gals of this require 2 to 1
460 gals Salt Solution or 64
gals excess King say should be excess

Yale Test for sulfonation of
all the Benzol put in test
distillation bulb + distil over
the Benzol. This may be good
test for finish of sulfonation

When a fusion is quenched
+ 6 inches of extra water
added to the Original 1600 gals
I found when stirrer running
the liquid was $12\frac{1}{2}$ inches
below top of tank at edge
when stirrer stopped it was
 $17\frac{1}{2}$ below

Our large fusion liquor
Tanks, the capacity below
the mud sock is probably
200 gal -

Two drums weigh 675 lbs
21" Dia, 30" long
3000 lbs is equivalent to 211 gals

Our Shale Salt has acidity of
12%. Requires 110cc neutral 100cc
Centrifuge liquor (Acidity 15%)
Its much higher now

50cc water 50cc 98% H_2SO_4
When cold contracts 4%

Alkaline solution in
quenching tank effects the
extra 6" of water put in
has spec of 1.215

100cc #2 fusion liquor
nearly neutralized with waste
Nitric acid + finished with
 CO_2 gas or Nitric don't affect
the phenol - when combined
over

It only requires 30cc of
 $\frac{1}{2}$ gal $\frac{1}{2}$ % to neutralize
100 cc #2 fusion liquid
against 110 cc Shell acid #3 tank
got 10cc phenol.
#3 fusion gave same amount
which is about 1700 lbs per
fusion

100 cc Centrifuge acid required
10cc Shell salt liquor
this was when Centrifuge acid
15% acidity

In neutralizing add
 $\frac{1}{2}$ lb salt for every gallon
alkaline salt. This is
about 1000 lbs NaCl per
fusion
with Mud filter solution
it will require enough
to saturate.

In alkaline settling Tanks -
the Cocks are 11" apart
down to 5th Cock then 28"
to Mud Cock -

Fusion Pot thru $1\frac{1}{4}$ " hole -
Emptied in 23 mins - When
sluggish towards end the 2"
bar should be driven deeply
in -

3 ft Tank	52.88	gals per foot
4	94.00	"
5	146.88	"
6	211.50	"
8	376.01	"
8.6	424	

Fusion pot holds about 1700
gals when the extra 6" water
put in - 6,375,000 cc.
63,750 $\frac{100cc}{1000}$ of 10cc phenol
to 100cc Calls for 1416 lbs
phenol per fusion.

Atomic Weights

Cl	35.4
Cu	63.6
Fe	56
Pb	206.9
Mg	24.3
Na	23.
S	32.1
Zn	65.4
H	1.01

3600 lbs Benz Na should on a basis of 7 lbs Phenol for gal Benzol give 241 gals Phenol.

Our tests show 80 cc to 100 cc of alkaline solution + 2 cc of benzoling - This with 1700 gals calls for 1416 lbs or 177 gals phenol. This is 64 gals short.

So far we have only got 684 gals from 6 fusions although not all neutralized say $\frac{1}{2}$ a fusion

We are 378 Gals short on our tests with 100 cc + 762 gals short on 7 lbs pounds phenol per gal Benzol.

275 Gals Benzol should produce 4682 lbs Benzoin sulfonate Soda

3600 lbs Benz Na should produce on a basis of 7 lbs phenol to gal Benzol 1554 lbs phenol 186.6 gals

Theoretically 275 gal
Benzol should yield
2418 pounds phenol
+ 3600 lbs Benz Na
yield 1890 lbs phenol
or 132.00 for 100 cc of
Alkaline Solution

Did I order the 3rd 299
for Aniline pot,

One gal Benzol should
make 16.84 lbs Benz Na
Salt Theoretically

2.316 lbs Benz Na on basis
1 for 1 = 9 1/2 lb phenol
or 15.55 lbs for 3660 lb
fusion

Each sulfonation should
yield 2000 lbs phenol
on basis 1 for 1

From rough expts the
shale salt pickup is
15% of total

Undried white salt from
Newark man has 3%
Moisture

No 29 alloy Cural made
by Titanium Alloys Co.
Nipawana Falls Can easily
be rolled in sheets &
resists HCl + H₂NO₃
perfectly even when air gets
access
1 alloy OK but too brittle
to roll

Quenching tank initial water
48" deep and 2" is left at
46" net. The fusion mix raises
it 9 1/2 inches or 55.5"

55.5 inches for whole change
net.

35.33 gals per inch net

1962 Gallons.

The number of cc in lots
of 100 cc is

74,261.

Lawrence Chemical used 71%
pure 98% in it - 56.8 ounces
for each fusion requires
3 1/2 tons -

Water Dia quenching
Tank 8ft 5 1/8 1/4 inches

424 gals per foot

35.33 gals per inch

left off - 1962 - Gals Extra 4"

74,261 - sections 100 cc each

1 CC =	165	lbs Phenol
2	330	
3	495	
4	660	
5	825	
6	990	
7	1055	
8	1320	
9	1485	1550 Due
10	1650	
11	1815	

17 cc per

Our new filter press 30X30
 40 plates - $2\frac{1}{3}$ Capacity of Kammerhoff
 22 Cubic ft. ^{of mud}
 Kammerhoff 36X36 - 48 Plates
 Holds 36 Cubic ft. of mud
 Gets 650 gals. liquid in 20 minutes
 Mud weighs 2160 lbs -

One quenching tank 1962
 gals increased in bulk by
 salt + usual #2 Tank acid
 on basis 63cc acid for 100cc
 Alkali to 3430 gals -
 Later we stop the addition of #1 to the tank 1962
 This gives 129-825 sections of
 100cc

$\frac{1}{2}$ cc means loss of 144 lbs Phenol
 1 cc 288 " "
 $1\frac{1}{2}$ cc 432 " "
 2 cc 576 " "
 $2\frac{1}{2}$ cc 720 " "

Net gals. correct

	Net gals. correct	Settle Tanks 96	Settle Tanks 78	Settle Tanks 69	Settle Tanks 60
Should get	1550	193			
$\frac{1}{2}$ cc in acid set "	1404	176	88		
1 cc " " "	1258	157	78		
$1\frac{1}{2}$ cc " " "	1112	139	69		
2 cc " " "	968	121	60		

Regeneration Flake from old
 Cells -
 K Arsenite Colloids N. Of Completely
 24 hours - dissolves some
 Sargnette Salt Colloids -
 K Ethylsulfonate ditto
 gives brown precip - Phenomenon

Kings says 750 lbs Shalesalt
600 lbs phenol - or 250 lbs
per Sulfonation. We use
1237 lbs for one sulfonation

Shell salt

120 gals water 20" tank
1200 lbs Shale salt in 36" tank
6 gals to 1" Hence 216 gals

In Salting Daily uses 480 gal
water 1080 salt, the bulk is
increased to 523.

Use 261 gals Benz sulfonic acid
It will use 15 inches for Benz acid -

Falting Tank 28 $\frac{1}{2}$ inches
480 gal water.

Use two Vol of the solution to
1 of Benz acid +

Slush Cam from seller

55 Cent	9 am
47	11 "
34	2 pm
34	5 "
29	9 " 12 hours

Prime Prime 5°C below

9 pm - Temp 29 deg	
12	23 "
3 am	18 "
6 am	17 "
9 am	12 " 12" in center of tank
	12 hours

Think it should be 10 hours
in water 14 in Prime,

2 Tank Shell salt acid
26% acidity - to get 33%
acidity add 17 gals to
Each 100 gals of tank acid
for 6 sulfonations daily will
require 110 tons 98 month
too much - will be 30% acidity
4 gals to 100 - (40)

From our Expts.

One sulfonation Requires 960 gals
Salt Solution

82% of this is Centrifuge acid

10 ac of this acid should use

10 cc Shell Salt Solution -

Total acid from one sulfonation

857.7 gals - Requiring

85.7 gals Shell salt

10% of the Centrifuge acid

55 lbs white salt per gal

This is 472 lbs Shell Salt
per sulfonation,

Square Circle 0785

Shell salt Barrel measures

Dia 28 - height 38"

Sept 1. King says 250 lbs Shell salt
is the optimum of 2000 lbs phenol.
It is not possible to work with less than
that amount -

The 250 is unacceptable to considerable
variation - unless the temp of wash
can shift was up by delay, if warmed
up more precip passes into solution
& hence requires more Shell salt
for its recovery or if an excessive
amount of water is used in the
sitting tank or if the Centrifuge
material is washed too much
more of the Shell salt will be
required.

24 hours should be allowed
for the white salt to precipitate.
In good practice between 250
& 500 lbs of shell salt are used
per Ton of Phenol

If more than that amount is used
some of the above errors have been
made,

1st Filter Press used 57% moisture -

It takes 50 minutes usually
to Neutralize -

See Caron how 2nd
Neutralize progressing

Started 6:30 pm 2nd set of tanks
didn't go above 28 lbs

3 tanks were done at 10:15 lb
1 at only 8 lbs pressure

last on 20 @ 25

5th finished at 11:15 am

4th 11:10 am -

we leave it till morning.

its warm & may not use neutralize

Average Tank full 1 hour

56 minutes

allowing 1/2 for unloading

this is 2 hours + 15 min

per tank. 6th tank full 3:10 pm

We now will blow off + unload

100 cc Reg Test # 20 Tank acid
Salt, all Regular - Expt time to separate

1:39 am	3 cc	Height 8 inches
1:40 "	4 cc	Over tanks 12 times
1:42 "	5 "	higher
1:44 "	6 "	
1:48 "	7 "	
1:57 "	8 "	
2:10 "	8.2	
2:30 "	8.4	
3:12 "	8.5	
4:30 "	9.5	

Filter Press Assume Cake 1 1/4 thick or all
Equivalent of Alkaline Sol. Then
each press full of Cake weighs
1575 lbs - 6 tanks full
Assume we blow this not wash
as it would loosen cake than if
60% left = Reg solution we
should have

Think 1 hour to run clean press
clean tank

25% full -
one hour - 2.5 min
go 25% full -

3rd Run on filter press 7
Tanks full. - This one
wz blow both sides.

Stopped blowing left side
when got 600 cc minute.
6 min to gallon

Hydraulic for Cabinets

37.83 $\frac{100}{8}$ in gal

143 grams to 100 cc (Benzene acid)

11.92 lbs to gal Benz acid

275 gals Benzol sulfonated
should give 4632 lbs of
Benzene sulfonate Soda

3600 lbs Benzene sulfonate Soda
on basis 7 lbs Phenol to gal
1554 lbs 186.6 gals
46.65 gals per neutralization Tank
93.3 " " Settling Tank

Theoretically 275 gals benzol
should yield 2418 lbs Phenol

Quench tank holds 1962
gals, should get 1188 cc per
100 cc - allowing 8% of water
in Phenol this gives
1880 lbs pure phenol which
is theoretical

98% H_2SO_4 $\frac{1}{2}$ water $\frac{1}{2}$ acid
has Spec gravity 1.500

48.1 Baume. H_2SO_4 59.7%

Des of 9 ordered 3rd Eq for
5th Aniline pot.

1 Gal Benzol should make
16.84 Lbs Benzosulf Soda
Theoretically

2.316 Lbs Benzosulf Soda
should on basis 1 to 1
Produce 1 Lb Phenol

Each Sulfonation on 1 to 1
basis should net 2000 Lbs
Phenol.

Newark White NaCl has 3%
Moisture,

24000 Records daily

	Day	month 2011
Shellac	2500	77,000
Para	46	1100
Phenol	3300	80,000
Wood fiber	16000	384,000
Sand		

Our Acid for neutralizing
still contains 4 grams Benz Na
in 100 cc or 152 grams per gal
which stays in ordinary Temp
but comes out at 35° Fahr
A loss of probably 468 Lbs
in acid necessary for 1 ton
+ loss of 203 Lbs Phenol

Evidently Shell Salt settling
Tanks should have water
jacket + brine circulation

1 lb Benz of theoretically
should give 1.205 lbs
Phenol, 8.796 lbs per gal.

4065 lbs Benz acid in forming
449 lbs water produced
1492 lbs dry salt required to
convert the acid to Na salt
1399 lbs 110 gals Equivalent
to 95% H₂SO₄ left.

Requires 1656 lbs salt to
convert the whole of the
remaining acid into Soda salt

1492 lbs salt produces
926 lbs of HCl, whose
neutralization capacity equals
original H₂SO₄

1656 lbs salt gives 1028 lbs HCl.

Kammerhof says his crude
Phenol has 17% of water
& makes loss of 2% in still
Nets about 80%.

Conc solution Benz Na poured
into Conc NaCl gives no salting
out even in ice chest?

Try if Dimethylaniline Sulfate
or base or Phenylhydrazine
or Quinoline in A4 Cell will
change polarization & form of
Curves. Chem Abstr 2026
Aug 10 1915 - p 2141

Polymerized Vinyl Esters
Such as Vinyl Acetate
Vinyl Chloroacetate by heat
or by quartz lamp gives a
solid transparent substance
like Celluloid Fire proof &
odorless German Pat
281,687 July 4 1913
Chem Fabrik Griesheim-
Elektron
Chem Abate Aug 10 1915

Isz if 5% Pava polymerizes
Gelatin - glucose sugar

Wz lose .66 of a CC in 100cc
Waste Liquor - If wz use 80%
of acid to neutralize
This gives 3600 gals waste
Liquor 133000 $\frac{100}{100}$ cc
Loss 195 lbs per fusion
24.3 gals 12.1 gals per
settling tank should get
84.7 gals without considering water

When a leak in lead lining takes
place and weak acid acts for
some time like for instance
a leak in Shale Salt Settling
Tanks the acid from this
when poured into Alkaline liquor
makes deep black precip
of Magnetic Oxide of Iron
& its impossible to separate
the phenol. The acid must
be thrown to the sewer

For each fusion about
59 lbs of Lead Chloride
is found in the Benz Na
Salt 3900 lbs -
8 fusions 472 lbs PbCl₂
precipitates comes from the
Linnings of Salting Tank
Center legs, shaft salt
Mixing + Settlers + 50 14.2
Storage Tanks -

Jac Hayman - ~~John~~ on the
Telephone ~~1/2~~ - 9/28 -

Note book of an attack
from ~~the~~ water -
percent water - get it -

French in America
Furley -

Washing CO₂ 800 lbs Calc 24 hours
8 sections 1" ft each 2ft 6" sq
is ok.

Standard Engine Co
Maywood

50 Baum 62.58 / #2504

Diminish ~~dry~~ Salt Content
of wet Chamber acid -

463 lbs water formed in
one sulphonation -

SO₂ in the 213 gals takes care
of 149 lbs water to reach
#2504 -

WE gave Kammhoff a
month ago a Carload
98% get it back -
Speak to him about
Chamber acid to
save his 98% -

Talk Choudhury about
his Nitro-sulphuric acid

Ask B. & Jackson about egg

Impson How about Steel Battery
box for auto battery + Req A4

Constable How about hardening
furnace's layout,

Constable Explain my hot air
scheme for Japan

Constable, layout/plating Dept

See Kammhoff about deslithing
my residues - in little still

Determine H from A4 - after change
sluicing & also deslithing

30 days
Aniline salts average one
Cycle Every $30\frac{1}{2}$ hours

Solubility	100 pts H ₂ O Diss at	
Sulfate Soda + Anhyd salt		Cry. pt.
0	5	12
11.6	10	26
17.9	16	48
25	28	99
30	43	215
40	48	291
50	46	262

Sulfite Soda	100 pts water diss at	
0°C	14	-
20	29.4	
40	50	

Calc carbonate Soda

100 pts dis	Ashy	Cryst
0	7	21
10	16.6	62
20	26	123
30	36	241
104.6	48.5	420

Bicarbonate Soda 100 pts #20 Or

	Ashy	Cryst
0		
0°	7.92	895
10	8.88	1904
20	9.85	1115
30	10.80	1224
50	12.72	14.45
70	14.64	16.69

In washing phenol for still
using $\frac{1}{4}$ of acid $\frac{1}{2} + \frac{1}{2}$
Then with 1000 gals -
54 lbs is lost in the acid.

50 x 50 acid is too strong
it acts on phenol in
preparing a precipitate
in ~~the~~ ~~the~~ solution
knowing this after once tried
OK when first used in com

See if there is any metallic
phenolate that will
precipitate phenol out
other than benzoyling -

50 x 50 acid ok for neutralizing
also $\frac{1}{5}$ for amide phenol
to get heavier coat best
after trial run shows
reddish phenol -

A phenol 305 cc
treated with 61 cc
 $\frac{1}{2}$ + $\frac{1}{2}$ laek water and
to such an extent
total water calculation
increased to 170 cc
3.5

Crude Phenol from Carbonate
Refraction liquor contains
27% of water which is
thrown out by treating
it with $\frac{1}{5}$ of its bulk
with acid $\frac{1}{2}$ + $\frac{1}{2}$

(10) 370 cc crude clear phenol
treated with 61 cc $\frac{1}{2}$ + $\frac{1}{2}$ acid.
Shows 170 cc clear liquid

thus depriving the 370 cc
of 100 cc water -

1 gal Carbonated gives
272 cc of pure
Crystallized Phenol -
Young Bengal + $\frac{1}{2}$ + $\frac{1}{2}$
and Dallys Phenol Liquid
this is accurate -

Tribromophenol after Benzol
shows considerable

Phenol washed with
 $\frac{1}{2}$ + $\frac{1}{2}$ gives 89%
Crystallized phenol
after distilling

Daily Average
with $\frac{1}{2}$ + $\frac{1}{2}$ acid

75.77 gals for

2 neutralizations

3 " " 113.65

4 weak Phell acid

68.7 gals 2 neutralizations

Get about 1000 Cryst of reading
redistilled - for Chamber acid
+ 900 of chalesalt use
Per fusion

Two lined pipe is fine for
Phenol stills -

Phenol is purified sometimes
by refrigeration several times

One Sulphonation Costs

Acid	\$ 42.00
Benzol	165.00
Salt	5.00
	<hr/>
	212.00

Product 4600 lbs
Benzinesulphonate Soda

4.68 Cents per lb of
Benzinesulphonate Soda -

\$ 168. for 3600 lbs for 1 fusion

1000 lbs yield 16.8 cents

$\frac{1}{2}$ + $\frac{1}{2}$

\rightarrow 5.0

21.8

(15)

Expt to Extract Maximum Phenol
from Waste liquor by Benzol
find best working Conditions -

Sol of Phenolate Na is sol in
Benzol -

in place Benzol

Dry Camphor oil -

Turpentine

Benzene

Solvent Naphta

Olive oil

Castor Oil -

Straw oil

Harvested put in each
Carton. Cyl & Disc

About Speed

About max wall taking
I. of Riley's best man:
CP #1-500

Hard - about a man to
attend to Mutching etc

Prachman put in a
good man to determine
just how many good
splints per per Carat
+ amount of powder
sequenced

Inventory Capacity
Saw table use also
parts big old to
get 4000 daily

Kammerhoff gets 11 lbs pure
phenol for 1.32 lbs Benzol
5.52 lbs per gal

Andrews Soap 45% Chloride Sodium
in our Tengenical formulae

This our charge of 3600 is
reduced to 3438

† instead of yielding on
basis of 11 to 1 1550

Should yield only
1482 Pura

In the shade of the old
Apple trees - good

Calvert Mauterius Phenol
not an acid don't combine
with Soda - To test this
Extract Quench liquid with
sulfuric acid

Eggs bigger Dally
Indy on a ring

Invisible perspective
Piston Coaled

Tell Luhr about
fluting of roll for
Blush



Books for blind use
Req. ink with friction powder
to feel letters

36 - Around 330° 78% phenol^{pure}
37 " 335° 81½% "
38 " 335° 82½%

W₂ can count on 82% pure^{is}
in the crude phenol when
½ + ½ acid used

So

60 cc Manno CO₂ phenol 16 cc ½ + ½
H₂SO₄ got 41 cc phenol 34 cc acid
Phenol reduced in bulk
leaving 68.33% phenol.

Take 60 cc CO₂ phenol
+ 5 cc 98% H₂SO₄ shook up
well in separator for 10 min
44 cc phenol with acid out
20 @ 20% cc acid solution
Think even less pure acid
will do W₂ counts

Use 10 cc washing tank +
add acid gradually - well and
coloring phenol in the
slightest be found it turns it
from Red to very light yellow
There is no heat the bulk
of phenol is as good,

3 cc 98% acid + 60 cc CO₂ phenol
it colors a little but it still
lighter than original -

Total 64 cc

46½ phenol 18½ acid -

It may be dangerous to use
98 as man may neglect in
color phenol - a little
lower grade say 75% acid
may be more practical

10 lbs 21% KOH, 2 ltr. to 1050

lbs phenol turns white.

and phenol red

strips CO_2 from redening

Phenic solution -

I think that 3 pounds

of such a strength of

soda as to be equivalent

to 5 lbs of 21% KOH

is sufficient to neutralize

the CO_2 .

A lot of float stop.

Redening of phenolic

60 cc CO_2 phenol 4 cc

Fuming phos acid - Very light

color total 64 cc

45 cc phenol

60 cc CO_2 phenol $3\frac{1}{2}$ cc HCl
Total $64\frac{1}{2}$ cc 49 cc phenol
fairly light —

Loss of phenol.

- 1 = Not stirred enough in neutralizer.
- 2 = SO_2 gas spurts out carries phenol
- 3 should be instead of 28%
waits 30% or about 8 to 10%
More than usual determination
- 4 = last part reaction slowly
- 5 = 38 don't work like other
full white,
- 6 = Cooled glass bottles yield $\frac{1}{2}$
cc - in 60 cc - or 8 cc also
13.3 cc per 100 cc # 4³ batch

Messerschmitt
Gardis - 3 Big Tanks
for Neutralizing
3 for No 2 Carbolic

Neutralizing - Low Phenol
7 = How are 30 $\frac{1}{4}$ "
9" be measured in Neutralizing
Tank if we are not sure
Total makes 39 $\frac{1}{4}$
see if it does -

8 - Possibly lead lining
in Neutralizing Tank so
bulged out - we are not
getting 30 $\frac{1}{4}$ inches at all -

9: possibly much of
Crystals form at bottom
of Tank Phenol in -

Inault - Hildes - Port work
Walker Truck.

thermal room
2 hours run up to pressure
5 $\frac{1}{2}$ to 6 to complete reaction
2 hours to drain off water
4 hours for separator
1 $\frac{1}{2}$ to cook off all water
15 hours -

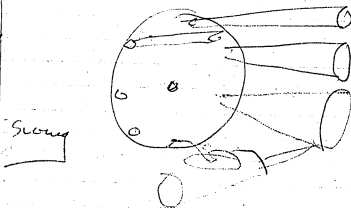
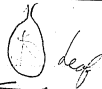
Olson man, (Lester Eng)
wants another job

Daily measures for phoned
contracted

163	is actually	200 gal
150	"	180
136		160
120		140
105		120
87 $\frac{1}{2}$		100
72		80
54		60
38		40
21		20 ^s
16		15 ^s
10		10

Have Werner Drip with
2 Disc Records
playing & locked
together but one just
below other stumps

Crowhopper
Extrudation



So on to test best
angle

Freud's saw fine - well

Be sure + interpose the
Reptiles Card in a Recorder
to soften Bonei rollers
elsewhe placans -

also Mufflers in front
of Cornet etc -

Ca 504 grams per pint
Ca 504 1.268
K₂SO₄ 1.336
NaCl 2.9 in Colorado spgs
water

Pass air ~~Submarino~~
then tubes in which
platinum wire rod
& burn thru coal
air & Condenser to
removr ~~of d. vapor~~

1988 gals

~~400~~ per person has been average
larger better pressio -

Expend of filling ~~Clear~~
~~Sectile~~ ~~vacua~~ -
2 gals ~~would~~ be sent
up -

See B4 ~~just~~ in seed
wood cars to take
all the acid.

Want bags blown
for dust ~~Drum~~

~~Denevichdes~~
Coating Hand Rubber
Disc with ~~beer wax~~
on a chilk -
undercut to prevent
leak -

~~Pentachloride~~ to
absorb ~~hydrogen~~

~~Hand~~
Ketch ~~ask~~, Straws
for a bag they use to
hold powder for
big guns -

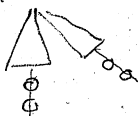
5

~~Mason~~ ~~Req us Benzohm~~
plant in lab to get
shred out of ~~Carbonated~~
liquor at ~~Carbonation~~
Advancing plant -

~~Involving~~ ~~as~~ ~~Dipping~~. longer
solution is ~~spaced~~ thicker
at gills. ~~But~~ ~~not~~ ~~you~~
one ~~take~~ ~~balance~~ after
dipping is you ~~now~~
Expect to ~~take~~ before
dipping.

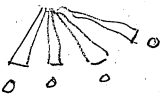
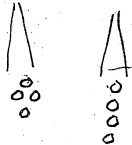
Run thru each
work a smooth
blank to working ~~more~~
to catch defects

Joy Saxe



4 surfaces not side by side

also



also

~~Ray up lens & beam of light flat angle to see defects~~

~~square record for a square glass~~

~~thickened in heavy plate of glass to even up over d/c - no see turning.~~

~~Fix up front and back black slip for show exposure~~

Anger - Moved to press wood into sheets to form by thin vacuum, 6 rolls of press in mounted

Dip from a Condensate
Mixer on to wax & make
working moulds, from wax

Double area with same taper
gives 4 times mouth area

twice length 4 times friction
Keeping angle same & 4 times
mouth area - 4 times strength

No gain =

Only gain is by reducing
friction -

In rep for funnel only way to
transfer to dip the power of dies
is to have long Column and
length increases thickness & overform
& shallow - but friction should
be reduced. This should be
reversible as to recording as
to lower & shallow

looks as if go from mouth
to flatter frontage of cones
The angle need not be so
steep on funnel thus
reducing friction & increasing
area without increasing number
of reflections -

If beat is brass powder it highly
makes more seconds

See Balkin about split records

See if our readers make air
tight fit on funnel end if not
it will cause blowing -

Try it with on the record
off Middleton Weather speaker
of bug - also speaker to run
it down -

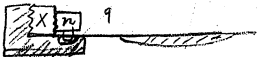
Keeps at Moore till he stops
Splits on edge

also Moore to stop Craps
by hardening blanks -

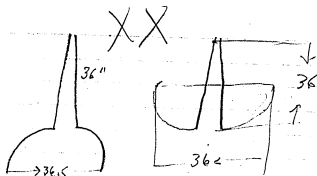
Put T & E

instead of Edman

Cook shellack
all over -



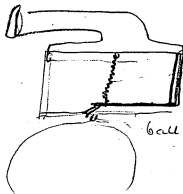
X fasten the Aceto n
lightens it over g by
screwing down



possibly to get
these notes the
width of
lower chord
10% as long as
wave length -



Enclose
horn heavy
box



string like

hanks

Turn high notes
above Piccolo



loose lead Pans -
A. C. Wilson -

Select 6 dif funnels small
& large taper - put ring with
S Crow on & try various flares -

fig No 2 this way to try all
flares; also glass funnels with
flares -

Try Varnishes - Very sticky
to diminish friction.

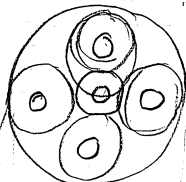
Harris - Get Collins forming Hope
Gluco's Home Vic

Song of the Shepherd Gluco's Vic

Nitrogenous Chemical Co
West End Trust Bldg.
Phila

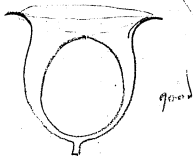
H₂SO₄ 60 To 66 acid

250 Tons start in January or Feb
will sell some -



Get some \$50 worth singers for
Rec. Tab, See Wallace Miller -

Hahn Co. Both wood also
anything else to make a flare
for funnel -

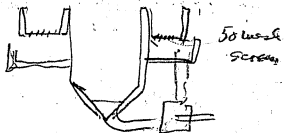


Try lot of Experiments
on Varnish to get
it tougher when wet
use small 1/4 plates -
etc -

Shows for Fayard & Ryan

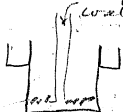
How about organizing some
Edison ~~light~~ system
for films direct with
Theatres -
or showing to large cities
than our jobs. We
forming Machine to
exhibit films

Have already come
over & see the
single & triple flake
separation -



50 mesh
screw

Receiving pump
works



50 mesh

Mason see about
Benzal Tower & others
Smith & Co

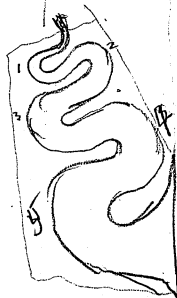
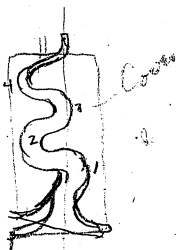
Andrews ~~How much~~
see in ~~see in~~ & other way

Give photo of samples to
~~Grossinger~~

Epson talks Guinness national
report 95%

Stewart Calvert Co
Seattle Wash -

get prices -



Hot - Covers Pass all
over except Ale
with felt Cover
Horse

Mason How about
filters bottom in
Cast iron bottom

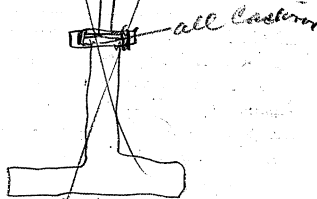
~~Hammer off a few about
More Elec Power~~

~~Daily Do you wash your
feet & dry often if
not your shoes
will wear slow -
How often do you put
new clothes on -~~

~~Twisting Want some rubber for
our rings for Rept. Lines~~

~~Wishes out hotel Panamco
Sept 4 offer 50¢ ^{opms} for 10 songs
Royalty at 50%
Record ~~is still out~~
out of ~~2.50~~ ~~no~~~~

~~Andrus Dick Shuras~~



~~also strengthen Gallon
of Acetic acid -~~

~~Christensen Hair w/ps
Extra shaft & saddle
for Para Oats -
ditto Myrcane~~

Wife at ~~Bony~~ ~~W. J. Galt~~ -

5 fusions will require
27 tons acid NaOH
daily -

~~Hutch got from Bl. Jones~~
~~Errored types of cc~~
~~gun~~

~~Send to J. G. Phila~~
~~for few pounds~~
~~Aluminate -~~
~~Telephon -~~

Wash out phenol after
acid with Carb Soda
they will react with
acid & phenol will
not displace CO₂

We pay A	Type	150	15
C		150	22
C		200	27
C		250	32

should pay	100	14
	150	20
	200	24
	250	28

The furnace combustion
heat losses are 40% of
the input (1000 lbs)

Don't forget to prevent unburned
from reflecting (occurs)
when big furnace used

Fix our vision with as thick cloth as practicable except the holes + see of sound so as loud as without it so this will stop teaching & reflecting to ear

See if increasing the flare on wind instrument don't increase the volume of a distance -

Find nearest high dip to west side Great Suct. & get some 2 with -

Lyons + Healy Machine + Records
Daily sales vs compared with Dlc Dr. (ppr)

1914	66%	61%
1913	75	60
1912	55	58
1911	73	59
1910	73.	45
1909	72	48
1908	73	48
1907	72	31

Machine

Records

Dlc Sales 1914

Machines \$ 147,000

Records \$ 69,500

Retailers

Takes about 52
grams B4J acid
204 na to

Neutralizing 100
CC fraction liquor
The acid 504 na is
dissolved in water
and temp & filtered
before neutralizing
solution some

Milky

48 gms for 1 gal Chem Water

Dec 1 - Estimate

Johnston	Woodward
Pure Benzol 34%	47
" Tolual 16	63
" Snap 16 from about	3
Loss 34	Dec 5th 492

Assume light oil output daily

1200 gal	1900 gal
Pure Benzol 408	969
" Tolual 192	95
" Solvent 192	95
Loss 408	741 -

Kummelhoff uses 1.916 lbs
NaOH per lb of phenol
produced.

from this daily should
use 2837 lbs - later try it

Capacities of our present Cabinet life

Baile	Daily	300
Lincoln		200
Long		50
Ritchel		75
Yazoo		25
Bartles		20

for 1914 - 670

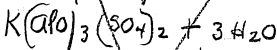
Get 2000 more to be placed

over what we have released

250	5000	1000
200	3000	800
150	5000	1500
100	7000	2500

Werner put both ~~cast~~ of your door
close permanently inside door
for windows so cant see in -

~~Aluminate~~
Subsulphate of Aluminum & Potassium



Alum can be obtained from it
by repeated washing &
drying, (also called
alum stone - Alum rock
Get Dana's ~~Wine~~ & bring
to ~~house~~ $7 \frac{1}{2} \% K_2O$
100% K₂O

~~250 Record - the faces~~
~~the celebrated -~~

~~See if Stuart's got~~
~~another crushed~~
~~size larger on hand~~

Goodman
~~Journal~~ ~~Account~~
Pulp bar rump hungry

Dime - Records 65⁹⁵ ave
New average machine ordered
last ~~at~~ price 147.4 net 737

Cy - Records 18.3
mach 1695

Have ordered 300 000 Lbs
Dec 6 - this is in stock
with enough to last to
January

Bot + on hand Dec 4 Shellac
592 388 Lbs
400 Ton pulp bot

I don't get Berggren's
Daily B. B. Report
why

Find from Hoffman how much
Shellac he is really using & how
much Phenol & phormal

Ask Muller when he wants
Goldwasser

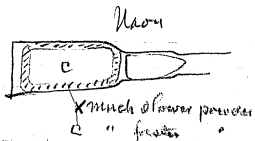
Where is B + some microscope
ordered at factory

Pick out ~~order~~ for D
Records

Fine powder at other end
Dirty Kmakelam + ash of Cotton
& bag a high velocity gas scours
highly heated steam with force.

Our shellac blank has not
enough cohesion dipping
match surface of cellulose shrunken
& is powerful enough to split
vinyl off - should be tougher
no dry off - see Moore

the cause of
cracks in
the blank



Stop Erosion.

~~Salpami - Dry gypsum Verifin -
della hot sulfuric
fun with soda bases, Nitro oxide
ferrie hydroxide~~

Navy. murr tube subjected to
hydrostatic test and lbs. mech. to hardened
metal -

~~Records - grease edge -
which requires pull -~~

~~Try Model on Record for blast~~

Watch wear on drums
Watch as against car wear
Try another repder

Ask Moore how it is that and
wear test on Record show
bad at top of his eye
wear test & put show
~~Something wrong here~~

Moore Explain about split
Kewer record ~~split~~ ~~split~~

Write D Van N for latest & test
Location of gunnery, I am
gunnery ~~Bechtel~~

Mr. Callen Lock with lead powder
to stop peeling -

Arrange all ~~Conduct~~ records
to be tested for bleeding as soon
as made

Consultable about teaching
Learnings men to show lamp
how to fix the ~~gunnery~~ ~~records~~
& W. J. ~~Winn~~ ~~gunnery~~

Judas 2 Violin 1 Viola 1 Cello
Orch for testing -

Try ~~Old~~ - Make ~~cellulose~~ films
for Duplun - see Kennedy for
Solvent

Orth, thinnest gauge Japan
paper with film & dope -
ditto silk with dope -
Get some gold ~~leaf~~ skin -
Do. Very hard Condensate films
More not softened by heat,

Try ~~Old~~ Discs of Magnesium
instead of Aluminum -

Kennedy - diminish dia
center $\frac{1}{16}$ " with on 2 Redwood
ditto increase $\frac{1}{16}$ " - 1

" " $\frac{1}{16}$ but thinner dia
Shave the Cellulose film (some)

Get good Prana ~~second~~ test then
make another or say 2 more for
worth to run thru - don't test,
Use new Prana -

After testing new ~~set~~ of formulae -

Make another ~~set~~ of sharper
angle.

Follow up with Calk see
Mason & have a run tested,

New man for ~~the~~ dyke go for
Parker for ~~charging~~ -
find out when ~~the~~ films &
fetter process of it, also tank
will arrive for Sulfite -

Have the new ~~photo~~ data furnished
& tested



Try a sounding board
back of the stages.

Phone or ask Maxwell
to phone to his old firm
if they will send me a
revolver without the
refling - just a smooth
bore, if they can't buy
Smith & Wesson -

Liquid Oxygen in steel sparklets
mixed with service powder -

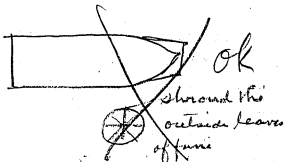
Aeroplaning Calcium phosphates & phosph.
Drop on sea to light up - ditto
Magnesium powder rockets -
ditto send favorable small balloons
flush mag by turbo mechanism.



1 lighter maxim - 2 max. lighter bullet more of them
 $\frac{1}{8}$ dia but unable to figure $\frac{1}{4}$ or $\frac{3}{16}$ -

Disc Morthey. Best idea of
all local Deussen shows
be published in this

Try magnets & MgO₂ with
~~Walter~~ South spent acct to
get rid MgO₂ - W. G. G.



Penny Smith Co. Nov 24/15
 81-83 Jackson handle Cobalt
 Spans - Amate Lynup Spans
 12% Cobalt 4 @ 8.0 Ni
 at \$55. ton Carlisle Co. &
 \$60 less than Carlisle
 less freight to Orange -
 N

See Gene Chen what price
 they will take our acetate soda
 + give us Glacial - see
 Christensen how much
 acetate K we can save
 to that used -

try Epson/Bells instead
 My Cl -

Violin	20	
Cello	-	
Viola	1	
Clarinete	7	
Flute	2	
Trombone	4	
Cornet	7	
Saxophone	1	
Baritone Horn	5	
Drum	3	
Musical	5	
Tuba	3	
Piano	6	by note 3 by Ser
Maracas	1	by Ser
Piccolo	1	

at Works

Marvelous sensitivity test for
Potash, ~~Sulfuric~~ ~~Barium~~
& Sodium Hypo~~sulfite~~,
as sensitive as ~~AgNO₃~~ is for
Chloride -

Try test call. dry in tube
dipped in soil & then read right
in Koff, Electrode -

Heavy boxes packed ~~in~~ ~~glass~~ ~~containers~~
also ~~in~~ ~~boxes~~ ~~plastic~~ ~~containers~~ ~~used~~ ~~print~~

Bags made lead wire woven or
tin with metal to make low MP.
Magnesium.

Dimethyl ~~ethyl~~
spraying ~~metal~~ ~~under~~
great ~~pressure~~ on way
Wash

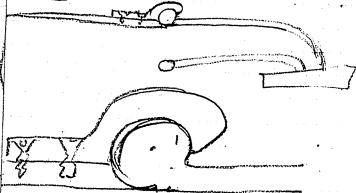
Make ~~continuous~~ ~~note~~
in closed chamber just as
phono is started ~~travelling~~
~~but~~ keep it up if no wavy
start again with 2 violins
if no wavy - touch fingers 4 times
seconds & also marker around
touching thing to find the wave
Use Violins ~~single~~ & two
together, near together
apart. See if using John
all loss it, trouble to player
telephone fixes it.
Maybe vibration of chroma
Sides or top of slats
out, moving forward.

July 5, 1916

Wavy motion or sounds
sustained when player
on strings into dust to
player - New Cello
Master Richmond Clapst

Explosives - Nitrate in acetylcellulose
" non-sulfury Blackhite

Johnell



fixed funnel

Only want 005 shake as
Can raise up disc or lower
feed -

Urosol II ~~Hexachol~~ ~~Polymerized~~

Urosol P " ~~p-Amidophenol~~

Urosol III " ~~Di-aminodiphenylamine~~

Colored produced by Oxidation of these
upon fibres by H₂O₂, Dichrom or
Aniline -

Discovered 1888 ~~Eng Pat 2525-~~
German 47349-51073-80814
French 195492-205299

No American Pat,

few depots used it badly

Merchely

Eng Dept of War, Millington

Average price received for
London 176⁰⁰
Vienna 61⁰⁰

WE have for sale —

- 1-1000 lbs Ebonite
 - 2-1000 white Carboron sold
 - 3- 3 1/4 Tons Montan - pure
 - 4- 2 1/2 " Carbonite
 - 5- 2 1/2 " Mixed w/ wax 5 mix of 3+4
- 4 is 830 lbs Stearns
140 " Ebonite
191 " Sal Soda
8 " Canolic Ma
1/4 " oil
1/4 " Carboron

Lay out Tin sheets
1 L they want many
900 boxes 24 boxes
they can't

Maxwell - we should ask our
factors if they inspect their
Records for cracks before
shipping ^{or} if they don't it
would show a lot of trouble
for Dealers etc

Mason did you ~~Calliper~~
Stuck Carboron

Medcraft Mason
Haver Bacon ~~Feed~~ 10000
Gild Carboron Bengal -

When Naphthalen blanks are
ok - put 1000 aside
regular storage or inspect
once month for a year

Moore in repairing Rub chalk
or lampblack in holes and
Cracks with Varnish

1 pint glue 3 yards
to have 1000 Whips
63 lbs Molar 46
Cold weather shorts
10 V 250 amp

CR13

Try grinding face of Condensate
transfer, & printing -

Condensate takes Wax off and
working would now -

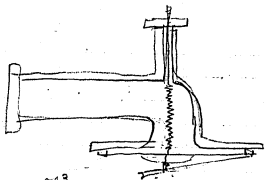
Transfer⁴ onto a second
then test transfer
for music -

Roll around page
ahead of this page

Try rolling a transfer back onto
to when it has to take out stresses
before going in even

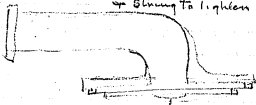
Draw lines on a transfer plate
 $\frac{1}{2}$ of edge buff the line
size is from 1" apart
& see if can meet on plate paper
on transfer

In printing - give very pressure
& then for a moment give very
heavy pressure to test the
winkles -



0.03
also 0.01
with

also finished or changed
Edges - also polished - Cork
to bring to light

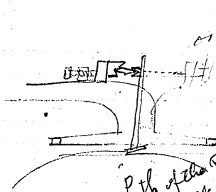


Double check 20 times between



mica 0.01

Cord interposed between
Kunze's reservoir & cork



as thread

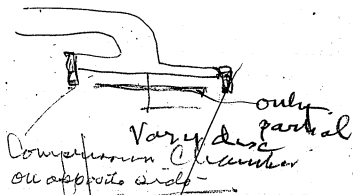
Speculum
Cu 65.15
Sn 32.78

Pith of the Speculum
at the lightest
Metal
for Speculum

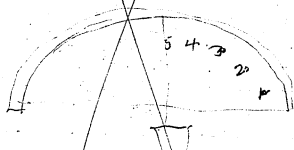
also
Cu 2 parts
Sn 1 "
Arzene 10 parts
also

Cu 62
Sn 33
Arzene 2.5
Barnes 8

for Journal
of Record of Camp



When get big tunnel
try a French horn or
Cornet



at 1 to 5 to note if hollow
sound disappears
right in front where least
reflections -

get some Balsa wood
from Porto Rico its
reported in US
for floats - $\frac{1}{2}$ the
Weight of Cork

also Missouri
Cork wood 50% heavier
than Cork -
above for Diaphan

W.C. O'Hare

~~Telephone 2905~~

~~Columbus~~

~~Insurance, 24 hours~~

~~Notice —~~

To correct drop off gun
put elec wire under entire
length of Cannon to bend
under side of ~~aperture~~
bottom side

Resin runs 15 to 16
for chemical use
add 1/2 p to Gray
to 22

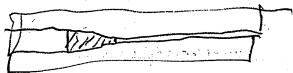
~~Switches in / lowering room
put outside —~~

~~Hoffman tea / meals
alcohol for use around
Vac dryers —~~

~~Use NH₄ salts that easily
decompose or heat a pint in Varn
when heated in Oven they decomp
& give powder~~

~~Try passing ammonium
into Varnish till loaded
Varnish connects
try this~~

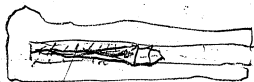
~~Think more of it will
take out Varnish
Varnish~~



Deformation \$6
Anatgami —
Zeppelin

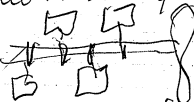
Bags for amulets
of aluminum cloth
dites with graphite
prevent blowing
Cannon

For spray in building
& leather shoes
leather bags —
no metal,



powder

Submarine engine

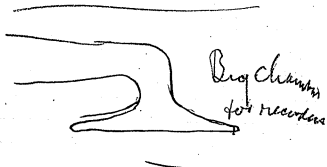
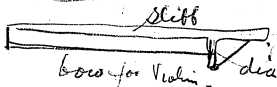


room 4 @ 6 Engine 4 by

Composite from log
book of all submarine
Every detail that
has your trouble

Crank shafts made
of many sheets bolted
together or encased
with rings & all
bored together -

This idea carried
in all parts cable break
Govt Subm & Aerap
Engrin -



K 58
219
200
51

500
75
2525
3935

73
219

57.6 (520 / 10.7
516
4

2141

1350
 1375
 800
 3525
 2900
 624

275
 $\frac{5}{5}$
 1375

150
 $\frac{5}{5}$
 750

1800

12

Woodward
 Cambria -
 Mill
 Sydney

950
 450
 1000
 $\frac{200}{290}$

Absorption Hydrogen

Persulfuric Acid
 Palladium or Pd Chloride
 Charcoal
 Tellurium - S
 Platinum - + Chloride
 Cold water

Crookes says K Ferri absorbs H
 K Permang Easy Cold
 Nitric Oxide - Plat black increases
 absorption greatly in liquids that
 absorb H

J A Wanklyn + J W Cooper Phil Mag
 [5] 30 431-438 H not absorbed
 by FeCl₃ PtCl₄ Ferri K HNO₃ etc
 with or with strong H₂SO₄ Chromic acid
 K Permang solution however either
 acid or Alkaline is attacked at ordinary
 Temp forms a brown precipitate

FC Phillips Amer Chem J 16-255-7
 long paper - gives lists & deducing H
 PdCl₂ slow but complete in Cold
 or at 100 c

Pt Cl. Very slow but complete in Cold or 100
Ammonical Nitrate Silver slowly
reduced to Silver
K Permang slowly in acid or alk
AgO reduced at 100 C.

Water absorbs 2.98 g
Hydrogen 1.93 —
Carbonic Oxide 2.41 —

On H passes thru red hot Fe Tubes

H is absorbed
Pt Palladium 505 Times Vol
Pt 49
Ni 17
Co 49 to 153

Victor Meyer (Ber 1897-1905-1940)
Absorption of H by Permanganate Very
Req. get volatile —

Strong H₂SO₄ at Cold temp absorbs Co H
H₂O combine slowly when passed
thru an Oxygen tube without explosion
may be distilled —

Victor Meyer Ber 1896 29 2549-60
H gas left over Alkaline or Neutral
Sol of Fe Mn O₂ gas is slowly
absorbed in Vol until alk
is introduced — In acids it is
absorbed & O is given off

Red hot Platinum & Vac.
H is sucked thru only

Nitrate Silver at 80C absorbs
Deposits

Anhydrous Palladium according to
F C Phillips in Chem Soc Jnl
1895 17 - 801-9 absorbs
Traces of H from the air with Cold
reduces the salt grey. HCl solution
Can be detected by Nitrate Silver

July 22 1915

~~Return to 4000 lbs. day
load - 2% cost.
for all work (see memo)
10 lb for increased production
above 4000 lbs. & 1/4 of
reduction below 2%.~~

Christman - Life Dick
Orthodoxy - Hodges -
O. H. D. Raw -

12 1/2
11 1/2
10 1/2
9 1/2
8 1/2
7 1/2
6 1/2
5 1/2
4 1/2
3 1/2
2 1/2
1 1/2
1/2

Standard aluminum shaw

57 recorder 1 1/2 x 1000 jip paper shell
down over side 10 ft funnel
Flows 10 ft shut 6" wide top to bottom of
pump shaft - nearly 1 foot quite
low down for seconds. 1/2 inches
Perfect -
Voice 2 ft from front board and
10 feet 1/2 to 3/4 board or probably
found enough for records -
fairly strong on 1500 ft board
2 ft total load singing as the
10 ft column are in general
above it - 10 ft further in only
less than 1/2 total of column
No echoes - Only a certain
small distance -
Room entirely provided 9 wide
12 ft long 7 1/2 high -
Can sing 6 people easy & 6 more
if higher more numerous -

1st - Unloading

3 pm started - Unloosen
at 309 stopped for a glass
hole, divided again at
330 unloading
all out 3.45 -

Total 25 min all out

Started to fix ready to
charge at 345,
start tightening up 358.
307. Rimming

1 Hour practically

Can be done in 40 min
or 20% less -

1 Fusion in 2 hours
as far as filling is
concerned -

$$\begin{array}{r} 18 \\ 20 \\ \hline 36 \end{array} 4 - \begin{array}{r} 42 \\ 4 \\ \hline 6768 \end{array}$$

$$\begin{array}{r} 600 \\ 360 \\ \hline 2400 \end{array} \begin{array}{r} 2 \\ 2000 \end{array}$$

$$\begin{array}{r} 600 \\ 360 \\ \hline 2400 \end{array} \begin{array}{r} 15B \\ 7 \\ \hline 76 \\ 4 \\ \hline 184 \\ 83 \\ \hline 552 \end{array}$$

$$\begin{array}{r} 1300 \\ 600 \\ \hline 700 \end{array} \begin{array}{r} 1320 \\ 165 \\ \hline 55 \\ 184 \\ 147 \\ \hline 809 \end{array}$$

$$\begin{array}{r} 630 \\ 115 \\ \hline 745 \end{array} \begin{array}{r} 1813 \\ 63 \\ \hline 1876 \end{array}$$

Who is the Witness
Expert for Columbia

$$\begin{array}{r} 152.72 \\ 8.65 \\ \hline 161.37 \end{array} \text{ Wadsworth}$$

$$\begin{array}{r} 70 \\ 35 \\ \hline 35 \\ 7000 \\ \hline 24500 \end{array}$$

$$\begin{array}{r} 76360 \\ 122176 \\ \hline 1229396 \end{array}$$

$$\begin{array}{r} 1550 \\ 1229x \\ \hline 321 \\ \text{shy} \end{array}$$

Notebook Series -- Pocket Notebooks
Notebook, PN-16-04-19

The dated entries in this pocket notebook cover the period March-September 1916. Some of the entries were made at Edison's winter home in Fort Myers, Florida. The book was used to record ideas about business matters, experiments to be tried, and other tasks to be performed. Some of the items have been crossed out and marked "Ent." Many of the experimental notes relate to disc record production. Included are entries pertaining to wear testing of various disc record compositions, varnishes, baking schedules, and presses. Some of the notes on disc composition were entered into N-16-05-10 (Notebooks by Edison and Other Experimenters—Disc Record Book #13). Also included are notes on battery regeneration and on military topics such as airplane wings and guns, along with a series of fifteen "questions to ask Admiral [Joseph] Strauss."

The business-related entries include a list of the number of violin players and other musicians employed by Edison, lists of material needed to produce record blanks, and notes about production contracts and loans. There are also notes regarding tone tests and recitals. At the end of the book is a notation concerning Edison's agreement of July 22, 1915, with H. H. Meno Kammerhoff, supervisor of operations at the chemical plants in Silver Lake, New Jersey. Other Edison employees mentioned in the book are Charles T. Dally, William W. Dinwiddie, Archibald D. Hoffman, and Sherwood T. (Sam) Moore, principal assistants in the development of disc records; purchasing agent Archibald C. Emery; Allan M. Hird, manager of the Disc Record Manufacturing Division; and machinist and longtime Edison associate Frederick P. Ott. The pages are unnumbered. Approximately 150 pages have been used.

At morning to find of study
Still to find the landscape
10 miles across for the landscape

3-3-16

14200 Records heeded

Run Outs	1801	quas
Cracks	1035	quas
Knobs	20	quas
Underlines	52	quas
Over spots	391	quas
Over spots	2	quas
Underlines	191	
Holes	175	quas
Chipped Edge	108	
Arched bed	113	
Rough Surface	174	
Pos. Band	154	
Crackles	56	
Flat lines	76	quas
Flat lines	34	
Flat lines	47	
Flat lines	2	

Miscellaneous ~~Notes~~ Records

Get photo lamp of Hydrographer
Hydroscope

Sunday ~~2~~ ~~Notes~~ records

Yakima floor 2 records

Compton ~~Notes~~ Schema

Mechanism ~~Notes~~ ~~Records~~

are now M ~~Notes~~ ~~Records~~ proper
with plates ~~Notes~~ ~~Records~~ etc

Arrange for ~~Notes~~ ~~Records~~ ~~Notes~~
one Model

Show Waterman & Rose their
Mould holders and work.

123

Questions to ask Admiral Strauss

1. whether taper at end of gun is
+ what causes of rotation when in
straight + what about strain on
band -

2. Why is mechanical work done
so quickly on projectile, is there any
reason the taper could not be twice
the length of the breeching part of
the projectile before rifling or
slight taper for 2 lengths more +
then stand in a completely to
first part of latter being considered
for inertia of projectile. This would
occur a distorted gun case
traveling away from zone of greatest
erosion

123

3. Have the enormous stresses of a whipping motion been taken care of
① longitudinal waves same as wave
mass in $\frac{1}{2}$ " glass rods being crushed
by a friction pad into hundreds of
pieces

After vibration due to rotation of
propeller making those vibrations
producing cracks

4. Would there be objections to
an artificial silk bag of acetylene
laced with rods to break it
Animal silk carbon is very cutting

5. Is there objection making part
of powder req. least part
to break condote

8. Is there any reason why hole of
2000 lbs should not be made at once
by blank powder, could it
be composed of force of powder itself

9. In the act of breaking section doesn't
Whirl of particles distant from
propeller chunks before whole bag
consumed

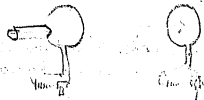
10. Could there be objection to a
lead bag for least powder being
incapable of being to delay
ignition

11. Is it certain that the chunks
powder don't force molecules
to deform them before they are
consumed or does the pressure
equalize molecularly around
each molecule

12. Are molecules put in
promiscuously in bag

13. About the muzzle ever below
the waves at end give greater stream
shells than shells would be made
like phone funnel to Champagne

14-



Magnetic loop vel rounder
Copper plated gun coils no dials

15 Working out fan blades dry about
cloth and slipped it -

Steel spunklet filled & expand in gun powder

to stop drop of gun part electric
was lagged under whole length
gun + axial tap to expand up

WC O'Hara
Telephone 2905
Columbus

Get some Balsam wood from
Puerto Rico 1/2 the weight of
Cork life preserver men use it

Also Missouri Cork wood
50% heavier than Cork

1: Drop flat needle blunt on blank
face & edge to determine hardness

3: Phenolate of Ammonia used
in Venice instead Phenol to
bring to 2.2% - ditto Nk phenolate
& Naphthylene - ditto Naphthylene only

Shoot Zeppelins -



Cannon

deforming solid amalgam

Big powder chamber

Bags for powder lead fibers cloth.

Use easily decomposable
Ammonia salts which when
heated & in vacuum will
decompose & distribute the
finely divided matter thru
the vacuum.

Try passing ammonia to
solution then brownish -

Try more $\frac{1}{4}$ to stop work

Try rolling a transfer plate
even before going to oven

Constable why not take
Warner, in your E. Exp
he is young could now

Genl Elec Starter

6 lead battery W. Exp 63 Lbs
Motor 46 - Cold weather
Starts 10 V 250 amp -

Vesol D p-phenylenediamine hydrochloride
Vesol P p-Amidophenol
Vesol DD Diamidodiphenylamine
Color produced by Oxidn of these on
fabrics by H_2O_2 Bichrom or
Quinone Discovered in

1888 Eng Pat 2525 German Pat
47349 51073 80814

French 195492 205259

No American Pat. For dipend need
then badly

Eng Dept Store Pillsbury Dec/15
Average price & need for Edw. #176
Victory 61.

Marvellous sensitive test for
Potash Subnitrate Bismuth &
Hyposulfite Soda -
Wishes B. K. Hyposulfite precip-
Experiment on this in battery

following men work at work

Violin players	20
Cello	—
Viola	1
Clarionette	2
Flute	1
Trombone	4
Cornet	7
Bass Baritone Trombone	1
Baritone Horn	5
Drums	3
Mandolin	5
Guitar	3
Piano	6 - 3 by Ear
Snare Drum	1 Ear
Piccob	1

Benny Smith Co 81-83 Fulton
handles Cobalt Spins 12% Cobalt
7@8 1/2 Ni @ 55¢ per Ton Carbon
lots for less than Core @ 60.
less fat to Orange.

Make Maple Flans -
blanks - dry & then
soak in shellac var
Condensate var -
give water Casen
treat for mold & dry
dry & then 1/2 var.

lay the ~~etc~~ blank
in direction of the breeze

Ask Mitchell about
Hypocrite Cell -

Try reconstituting old from
plate by running low
rate electrolysis &
then soaking in
hypochlorite Na -
to further oxidize wax
to break up the films by
now -

Pat new straight
groove pyrazoles &
also acropylam
using all aluminum.

Get some hard lead
plates flow
116 E Var baker
transfer neg -

Huffman give all the
Diphonal for coat -

Huffman Salary

Get in touch with the
stratum across people
closed down

Dark records in

Melted. Vaseline

Methyl

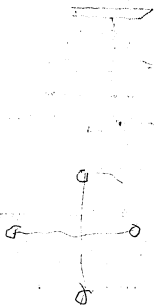
4 Melted paraffin

also in Mineral oil
for some time -

Get work for Gray

Aeroplane Gun

split



Try plural along with
say ~~2~~ 3 6/4 to
6 plural on sig
safe schedule long
several responses
6/4 scrub at it
heally does -

See we have cars at
Sydney - 2/11/1950
~~Rogers~~

~~Emergency~~ Full info Cabaret
present price

# 100	14
150	20
200	24
250	28

For orange

CP Resin & Absolute
Alcohol dry precipitation

Chlorite Calcium
to keep water in -

Oil Zinc
Chloride

Best wear after printing the
Veneer Req or 387 to water basin to surface
after that use 1 each



Cut Veneer thin to relieve
at joints - collapse wash
then this way
a 4 to deli



Transfer the 3 Iron plates -
afterwards put some
387 E Varnish on face
if edge cracks

Lehr turn down 6 iron
plates to $3/16$ after you
have a dozen $1/4$ inch -

Moore press iron plate
Varnish 250 pressure ^{but only 200° F} by
another iron mould.
See if it still adheres to
original plate, if so -
Transfer & print on 1412
perhaps instead turning
can press them flat,

Fred Ott = Req Var flow & plate
press

Band cage for $3/16$ iron

Moore wash cast iron
plate req wash

Hoffman Monday make up
387 E Var for 100 transfers -

look up desirability of making cast
iron plates more than 10 $\frac{1}{4}$
say 10 $\frac{5}{16}$ inch to get rid of
the low edge.

Take Cast iron plate 60 cc
Req Var or better 387 Var
use another cast iron plate
& put on 2000 lbs press
see how much squirts out
if it comes off on one or
the other transfer to ex
blank at 350 & print -

Cook some Req & 387
Var at 135° for $\frac{1}{2}$ hour
see if bubbles arise then
Cool & flow several
plates Baker & see
if bubbles - Note
rise of Viscosity

Moore July 6/1912
dishing experiments with
the other Glycerin Var
4% - also 6% where
 $\frac{1}{2}$ para used -

Wilson - I no longer get any
reports of Waqner's sales,
or our own films or how
Paramount deal is coming on.

get some 387-8-etc
transfers turn them
off - & print. Warm

- 1 = Get pattern for stove plate iron
disc for Paramount
- 2 = Get large Schaeff plate to
cut disc from -
- 3 = Send to Memphis Jayne for
clean piece ~~with~~ ~~having~~ ~~done~~
to cut disc from -

4 = Dry ~~two~~ plates
in dry glass plate glass
or any other gallery
Cross
Slab of ~~glass~~ ~~plate~~ -
Dec of 150H all the way
of these -

5 Put away for time test 10
redo line repeated records to
see if time changes the cracks

6 = flow on 1/2 plate dry 2 hours +
turn flat with sapphire ball or
burnisher so as not break the
skin - possibly no alcohol sol
left and a solution of nujol
or kerosene - cannot have in
solution wet with kerosene
if breaks dry 2 hours about 2
hours 130 or 120 + nujol + kerosene.

7 = 6 sheets or discs of black iron
pressed together by a press
Cement.

8 = flow 2 plates dry 3 hours
put transfer 1412 blank into
between put in oven + bake
Regular. if shows any signs
dry longer. Can even heat to
130 for 2 hours -

9 = Even crooked plates could
be flowed + baked in hours 130
if followed could make the same
thickness form.

Moore was tested 12 of 418E
where are the records of the
balance of the record 173 that
was to be printed on reg
Metric weights

previous flowing of V
by fixed point standard
at a dozen points - 1100
with therm

of V Miller, ~~is a little~~ ~~is a little~~
Silver, following ~~is a little~~ gold
in the air after making thin gold plates
& last observations on chrysolite
also action of oil. Think to my
around cold cells.

Overmollage



xperimental
great observations
at the overmollage
of the cells.

Pages go + hidden to some
of the traces of
Same time, instruments
also V axes, we have 3
see if they are ~~Diaphanous~~
from our Records

Take lac 1412 ground up
treat with ~~the~~ see of
hegemate, pulp & lac +
Resin - keep some near
on it.

Patch a ~~Cracked~~ Var
plate ~~to~~ again in
oven.

Suspect too 1412 blocks
for bad of old Edgson

Get some ~~reg~~ Var plates
heat on steam plate +
try make fraction
Crystals

See if blank records
are flat.

See some plates ~~hard~~
get ~~holders~~ in ~~making~~
Wed. ~~sp. al.~~ -

Get the ~~thermometers~~
fixtures for presses

Get ~~Talbot~~ at ~~making~~
the ~~thermometers~~

See about ~~Wald~~
holders & other things
now being made +
also ~~could~~ order
they have

See the ~~Case~~ hardened
plates, ~~for~~

Punch out ~~of~~ form plate
of heavy ~~iron~~ - also
of thin steel -

See ~~Huffman~~ about
Varnish -

~~Dunwoode~~ about
filling ~~our~~ Varnish

See ~~Huffman~~ ~~spilling~~
para - ~~poison~~ etc

~~Dunwoode~~ get ~~Expansion~~
& ~~Contraction~~ of $1/4$ "
blank & a print -
upto 330 - down to
400 -

Arrange Hoffmann test
his Resin 1088 ahead by
making 250 plates -
Transfer + Reprint -

Kennedy try a
Reg Resin plate or
big funnel

try a test plate -

Marion what you
doing with Woodruff
Chermsist -

Moore Assemble
300 High Gate
+ then Disassemble &
note cracks -

Tell Marry + Kimmelschiff
look out Helix Cate
don't get lost as they
will be in away

Reprint 1/2 times
24 new Records
Suspect each
Schedule 200 then
100 lbs / min
press 2 min -

Fix up between ~~Moors &~~
~~Hoffmann~~ new bldg

dealer some ~~Yenes~~
from baked plate by
Soda - then ~~Hydrocapitate~~
see if it will
diagnose ~~Aa~~

Master about
accommodation -

Calliper ~~Record~~
World. ~~Walden~~
see if they ~~aint out~~.

Melt ~~Sandarac~~

" ~~Para~~

" ~~Resin~~

Make some ~~Vas~~ see if
Bubble

Write with ~~KOH~~ then ~~break~~
with acid, also ~~Alcohol~~
also after acid by ~~alcohol~~

Test ~~that~~ device on

~~Aluminum~~



~~Ventur~~ - get list of
part assembly parts
for all machines &
have bench room
allotted - in ~~assembly~~
drawing -

Harry into Japanning
acetic stiches

See if Reis can make
right in - go see it

Go with Chappas see
Bldgs -

See Recovered phenol
Reduction -

Maxwell only use
1412 for Demons. Cuts
- 1. Some tests -

Ask Bachman what reason
Stokes gives for raising
price of Becker

Let about testing
Chalk -

Three Hoffmann Recovered
phenol sample -

Emery Ludwig around
for other makers of
Chalk -

See if Hoffmann has plenty
Chalk -

Req Insping Calliper of
1412 Clarke -

Hoffman. Sec'd ~~5~~ gal's Reg Var
no para to fls + 10 var
plates -

Buy fund for fls -

Buchanan McDaniel
Smith - 10 gal. of
lesing iron of return
Cells to see necessary
to change ~~iron~~ -

also put 60 cells together
& test -

Take 5 lbs good resin
50 1/4 cell plates
Some para of 1/2 lb all
the resin & wax
gal for ~~resin~~
2 lbs 4/4 -

1/2 doz big plates -
a water & plum cover

2 Thermometers -

5 lbs white phenol -

Don't to see Chas E &
Constable about approving
if cant agree send to men

Calculate 38 Cents for Resin
& 5 1/2 C each for sec. behale
Acetate Cost for men
13 1/2 cents -

Get check back -
\$500.

Lot, keep up check
point -

Emergency fund other check
materials -

Tell Woodcock list of
what ~~is~~ sent

Mason put on time
test 48 low bake
& 48 low low bake

Dip sheet iron
shaper in Condensate
Van & bake -

Carbons in charcoal
some Condensate Van
bake 250 - see how
much it shrinks -
(for telephone)

to get all the Benzol off
from Sulfonating Oil use
the sealer tank & connect
a Condensing Coil & raise
B.P. above Benzol -

Chlorides at end temp give
Hypochlorite but at higher
temp Chlorate.

It may be battery works by
Chloride in KOH & sent
Cl₂ will not try steam
with 2% KOH & 3% KOH sol
& also hot. It may be
Bismuthite sol used
is cause of Bi working
so well -

Try if fused felspar
decomp by boiling sol
Mg oxide or Mg Cl (55)

Membershaft get sample
Na₂CO₃ try Carbonating
etc. if it is in can
sell it

Did it off your success
in selling the Crude
Acid -

Experiments at Meyers
try hydrochloride of Parva

Also without Parva find a
schedule

Also free Na₂CO₃ -
in Var - to see if bubbles

Try great excess warm
& Resins -

Try one plate covered
over the other -

See if sandrac loses weight
dells para after 220° Fahr
up to 330° Fahr

To Each 265 grms of Var
add 1 gm Parva + 7.9 gm
6/4 - This makes standard
Var -

~~Write down to have some
Var~~

Think our best way is a
double flow of 3 hours
Heat after 1st (low &
2 hours after 2nd
use thinner Var (10
more ad so it will flow
ok using 28 cc
Equivalent

Pass formaldehyde into
Alcohol \rightarrow S.

also into the Vermorel
& heat sea of ether
pl. see 6/4

When get Resin.
Use part of alcohol
Salicylated Formaldehyde
instead 6/4

Get 20 cc or even 100 cc
in plate. 6 aka
to 210 then flow over
liters 25 @ 50 cc
& Bake again.

Amylic Ether
BP 180° Centg.

Anisic Alcohol - Cryst \rightarrow
MP 23° Cent - Boils 250°
H2SO4 converted to Resin -
2nd converts to hard transparent
mass MP 100° cent used alcohol
or water -

teleph. Measurement of
Oven Fresh Contract
Closed

Put

Take some of our
phenal ~~and~~ double
distilled and boil
see if all Resolene
falls off - Neutralize
with CO_2 & redistill
see how close to MP
Can get -

Think the added phenol
to our resin should be
5% or more

Try Make Resin
from CO_2 & phenal
if good - redistill -
& try for adding

See how much sulfur
other things in our
best sample - Use
plenty and cold &
see how much black
get out,

Make a very heavy
funnel some size and
now use in oth. room
to get it colder when
close to - think
some of volume lost

When get North by
campaign of taking
out impurities at 180.
@ 175 to stop cracks
Also double pour
to get rid of bubbles &
Subsequent cracks

possibly because Moore
is getting a deal low
% of 1417 ~~or~~ ~~transformation~~
is low scale - The ones
we tried were all high
to a bit -

Our own cannot
possibly condense
all the states
Alkyls & I think of
Campana ~~should~~
stand to get even
heat. The ~~ones~~ ~~which~~
heating the air & the
air blown into ~~own~~
distrd of irradiation
at even temp -

THIS IS VERY

Important

All aldehydes combine with
acid Sulphates My Formylaldehydes
& some phenols etc

Add 10% wood alcohol
+ 3% Para to Van just
don't fire quick add an
oxidizing agent so at
a mild fire to turn Methylal
into Formylaldehyde

^{cell} Aldehydes combine with
ammonia to form
Aldehyde-Ammonia-
by heating turn into
Ammonia bodies -
(Basic)

A resin is formed when
Cyanamide reacts on
acetic aldehydes
My Formylaldehydes also

Should try make Condensed
from amine then add HCl
to dissolve out amine & get
a pure Resin - Then add
what is necessary
to make it as cheap as
phenol.

Got from Hayden some
Concentrated Formaldehyde
in Alcohol -
The alcohol phenol in it
I make a Varnish & Cure
it slowly -

Also use Alcoholic
Formal instead of -

Dinaphthyl⁴ & Resorcinol
body. This will
certainly condense made
by action of H_2O_2 Waring
& Sulphuric on Benzol

Just contact may not
be enough to flatten the
varnish plate have
cooked centers -
Better make some
Expts to find how
much more pressure
is necessary -

Put lot of 1412 that don't
do well into
ovens, for 10 days or
2 weeks see if OK

wt. MgO

MgO at 35°C in MgO case	4.125 clb
MgO 92% at 100°C in	5.43 "
Epoxide 60% at 60°C in	18.2 "
MgO 86% in	7.5 "
MgO 95% at 65°C in	8.1 "

It may be in self protection
we do not want all
the Benzol -

We could blow hot air
thru & Condense the
Benzol - or perhaps
raise the heat &
distill it over of
perhaps close the
Salting tank & blow over
the Benzol -

Possible, no water
kept in reflex pipe of
Sulphur, if so below

Think we should
put cooling jacket
around tanks & have
whole Benzol condenser
of Mg siphon out

It might pay to
close the Condenser
& blow air thru to
remove large amount
H₂O & H₂ before going
to dryer

Use what 1/8 steel
sheet very low Carbon
sheet can be got for
stretched for Bar
plates & plate covers

Benzene disulfonate of Soda
distilled in air with
retort gives Thiophenol
if done in Copper retort
subject a trace -

Evidently we get some

BP 172.5

Vapor attacks eyes
has alcoholic or aromatic
odor

Combines with H₂O to
form Thiophenol

C_6H_5-SH

Phenyl Sulfide also
obtained by dry
distillation of
Benzene disulfonate of Soda

$(C_6H_5)_2S$

BP 272.5

Phenyl disulfide

$(C_6H_5)_2S_2$

BP 310

Resorcinal Ether is
a Resin

Resorcin $C_6H_4(OH)_2$

Chlorine acts violently
on it tending to form
Resinous products

Conclusions I came to in
Expts. with Surface Discs -
Para makes uneven plates the more
used the more uneven -

Method - To cure bubbles diminish
free phenol if you still have
bubbles increase the Para &
slow to check back down between
140 & 165

Generally less of plates are
due to bubbles almost
entirely -

8 1/4 Bubbles increase with addition
of free phenol 2-9-11-18

Para decrease bubbles

With 1/4 increase of phenol
increase bubbles

With increase of para bubbles
diminish. This is equivalent to
diminishing the free phenol

Monochloroethylene or
Vinyl Chloride
 C_2H_3Cl . Is a gas
when exposed to sunlight
is converted into a
Viscous Amorphous
Insoluble Mass.

Dichloroethylene ^{liquid} $CH_2 = CCl_2$
it passes quickly into a
polymeric modification
amorphous insoluble in
ordinary solvents

It also easily combine
with acid sulfates,
which decompose rather
easily at ~~temp~~ 100° Cent
perhaps less better
than 1/4 as pure
no gas

In aqueous sol of Aldehydes -
Ammonia on standing & quickly
on heating attains a fixed
number of bases called
Aldehydes, or aldehyde bases
These bodies are amorphous

Oxalic aldehyde
forms a glycosin made
which has same constitution
as Hexamethylamine -

Glyoxylic acid has all
the properties of an
Aldehyde -

See if press platens
Calliper same thickness
all sides -

It may be easier is
softest at 100 @ 200 +
will squirt best without
cracking & that after
its condensed may not
stretch so much

Wash - Wash then
Sulfur felter Coke
with waste from the
Benzolator - This
will take phenal
out, & could return
the wash liquor
to Carbonator +
save the phenal -
wrote
See if he did it

Washes No Off Cold -
Very cold to get high
water hydrate as if
think boiling with
excess H_2O shakes &
lowers hydrate & its
net so good -

Try hydrated sulphide
Ni in tubes

Calliper Van. plates
also see if round
Edge on plate &
holder is the
same.

Nitroaniline & formaldehyde
Make Barnish -
Try -

Iron grid loses capacity
by getting dense between
sections of mercury
Submerge in bath of
in Nitrogen or Hydrogen
the iron grid will
wash to be washed
off the top -

Treat for sulfonation
Use 50cc + distill over
any free Benzol use
Vad to keep temp down
See if Bolly & Maxon
broad it -

4-19/16
file patent for
KCP from Japan
& NaCl fusion
absorb Valde KCl
by water exposure
till becomes
Concentrated -

32 Records at Uyas
64 Surfaces
Feed line cracks 2nd OK
" " 5th Bad
Big Wrinkles 7
Mud on turned up 7

Cracking Experiment

12 first prints test
12 2nd " "
12 3rd " "
12 4th " test -
Knife test 1

After we have worn
plates or knife out
crack them make
Run at 6000 8000
see if crack this
will prove if condensation
next plate in Transp
control first + Clio

See my patent for cleaning
saturated cup for
battery was not allowed
Cathode used.

Dean of Prod
ments used

Use

Try MgO on liquor
from centrifuges
& get Dally
used to it -

Ozone is a powerful
oxidizing agent like the
peroxides -
its power of Amalgamation
is scarcely exceeded by
any other substance -
Dis in boiling H₂O -

After blowing at
a bird cage full
up at angle thru
Reg Sch Res if
flows in oven
if so blow more

It may be - Var Creeps
in Coast to Edges - It
is more from Scholtes
relaxing to open
billion plates -
p. 1000 - relaxing
in the laboratory
every 10 min

Cracks may be due to
over condensation at
Edges & under in Center
from constant circulation
of water in pores
the outer is still
over condensed as
compared to inner
Must flow between
silice

See if any P-Metamorphic
in lat dyes coming over
if it looks less than over
the p-phenoldecan comes
over any some
turn it up to P-phenol

Mentha & ket
we see Sales Valant
Naphta - & what is
daily output

How some returned
old records ~~be~~ dipping
back 210 - & ptmt

Bochman ~~9 miles~~ ~~10 miles~~
Bochman

See if sludge acid
quartz or B.F.

- 1 = 10% Van + 1 lb. of Sludge
 - 2 Examined 10 lbs. of Sludge
 - 3 Van + 1000 Van 3 coats
heating after each
 - 4 Van + 1000 over Edges are wet
 - 5 2 Coats #1000, 700 lbs.
 - 6 " " 500 lbs.
 - 7 " " 700 for 6 min
 - 8 " " 700 3 min
 - 9 " " 700 20 min
- 10 = #1000, with 1000 lbs rubber pressure
- 11 " " 700 lbs. big area
 - 12 " 2 Coats 700 lbs. Contact needed
off in 5 minutes with steam on - then
12 min at 700 lbs -

15 10 Blank 800 Rubbers

- 12 " 700 lbs. infrared pressure
- 12 " 800
- 12 " 600
- 12 " 500 if ok to handle
- 12 " 400
- 12 " 1200

12 Highest temp heat
at 1000
Bochman Wheat
because that Bochman
who was working on
starting ball bag

See how small a battery
will act as carry
over for light from
Magneto on a
Ford Car

Iron - Sulphate at lowest
prices. The lead lining acts
catalytically to make SO_2 from
iron

Sulphuric Acid from
Netherlands conditions
Clyde - known
country line -

~~Yarnish 3/Carts of
Kerr Druggist Record
& Repair 12 of 14
1 Repair~~

Tennant Sons & Co 16 John
Avenue 12c lb
NITRITE SO₂A

Try mixing in our Iron
Panorax of Lampblack to
Keep from combining
with without getting Lampblack
Also some M. O. or some
focodes that in time will
hydrate & swell.

Also try quoted substance 20s
mesh. also Red Iron dispersion

Daily Report 1519 1522
Blanks made

Daily Rpt 1519 1522
made - 1/2" Records
1519 1522

1522 blank 1/2" Records made

Varnishing Machine made
& Operated day & night
& much Varnished

find number of Racks 13
we have

Try Experiment of 13

Run 4 Racks

1522 on tape from all machines

16000 blades / 90 single
Coats in 10 hours per
rack - requires 177 Racks

hence 3 Coat for each

3 hours for all machines

or 531. Without night
work - get 102 hours

Buff some discarded see
how bright they are just
them - if get bright buff 1 Round

of machine

for ~~some reason~~
Surface of ~~blades~~
may ~~be~~ ~~the~~
4 weeks

Before taking mould
apart tap edges slightly
50 strokes in each run
then before lifting
to stop part out
Tap 4 point

I wonder if knocking
out breaks side walls

Have 2 day 2 night
Moa to do just as 13
begin doing Records
Rounds all the time just
as they are sent + promotion

Get a gray block for
Moa (will) Coat full
bits in label to show
reflections -

Dep Edges by ~~reality~~
after ~~many~~ ~~years~~
in Kerosene to soak them
shells + last month

with the
Vander

Try last Coat without
Lampblack see if it
dont slip sticking
to mould -

Or more Lampblack
say 7% -

Try 5% fine flake
instead of
Lampblack -

ditto 8 1/2 6/4
+ 5% Lampblack

Try Chlorales &
Pentachlorales
in battery -

See about dating new
Records - Paul Brown

Why are gauge Cabinet
not in place floor 5

Thous White Screw Dept.
SEE Emery about acids -
New Record

- 1st Store place for transfer holder
& plate,
- 2nd Remove rubber transfer plate
with it -
- 3rd Rig up to use transfer press
for seconds
- 4 = Experiment on Edging
records on Mandrel Edges
- 5 = Extra Van lat position 3
with new 122/3 6" rubber
& Ratchet - 4 Rounds
- 6 = Experiment Water film of 4 Severish
Edges -

7 = Stop Chipping out edge powder & finish -

8 = See about Miconet stop steel possibly must pass another magnet fall 3 ft thru mag & Calcium or other 3 ft thru another mag -

9 = put on iron picking steel out + present 8 Rounds of two work -

10 = Keep more on the swells spots on tanks -

11 = Do middle experiment Rubber principle of pulling and removal -

12 = Run off Grafts in Vault for 1 month in work -

13 = Specially sifted 1522B powder very much time to print 2nd Molding 1 cont 9 then water proof

14 = Water new Rubber pad 6" x $\frac{1}{2}$ " to see if it stays Broken Edge a good finish

15 = Edge - Number edges of Remondy, & to inspect

16 = See if Can stick printed paper number on edges -

17. Load 9 + 10 - Mould inspectors watch a report defects a continue mixing till must be taken off -

18 = Experiment two 8" dies Bogardus type hardened with weight to hold down for lamp block closed to prevent Evaporation Oil to design

19 = Water new loader of powder showing this -

20 = See Emery about supply of
~~powder~~ Chalk

21 = Have ice anvil & striking
180 mesh screen for fineness
of powder

22 = Have ice at least 3 spare
parts for Fuller Mill -

23 = Place to store Hammer
Leathers & replace by
more wax in leg to increase
Capacity of legs

24 = Device for proper handling
of blanks - preferably use
blank should be handled
as Records are handled as
surface as possible

25 = Extra due 25 High Ten
Van Bakers & test rounds
to see if ok

26 = Soak dozen Records
in water side of holes in
Mosaic

27 = Make wear tests on
bands till 500 times
Then 1 just to test will do
& 1/4 of each sufficient.

28 = Make cold test on
Christman type also
1 Coat in oven 180° by
test before & test surface
after at 6 in 6 to 6 in
blow in brine 10 deg
below freezing or lower

29 = Put out on roof 6
Edges of center powder
Vanished record for time
test,

30. Test the records as per
Ovens & all time test
records —

31 = Grange for chip out in
blank $\frac{3}{32}$ in —

32 take off inspection limit
on the check of difference
of Calliper between faces.
only inspect for any wear
dirt dents & steel.

33 = Test regular schedule
4 Rounds 6 min cool
4 Rounds 5 " "
4 " 4 " "

34 - Reg. schedule 850° for
10 mins - 7 min cool
4 Rounds 4 rounds
8 min at 850° - Cool 7 min
4 Rounds 6 min at 850°
7 min cool —

4 Rounds $\frac{1}{5}$ min at 850°
7 min cool —

35 4 Rounds Rubber housing
6" x $\frac{1}{16}$ " tapered $\frac{1}{2}$ inch
side —

36 - set Endgrip 11 days out &
assemble same records for
Edges & inspect for scratching

37 = Stop Entry from
Contracting for 6/4 yrs
Formulate the ~~the~~ and Alcohol
Key for transfer plates on

38 = Make same 1 min vs
Varnish for 8 Rounds
No para or sandra - make
Ear & wear tests

39 = ditto 8 Rounds with
Para, no sandra, make
Ear & wear tests

40 - See Maximum Storage of
Dose Records 106. Hayes

41 - powder blank for cylinder
Varnished & painted
hot air pressure or plunged
Expt for Dimechrome get
rid of Celluloid -

42 Take up subject of sheathing
Hoffman's Dept & Record
Block room inside with
steel sheet ceiling put in
of up impervious steel on
wooden members of lines
of Specimen cylinder
in bath - Sifted windows
in bath - fine partition in
bath,

43 - More droping
test -

44 - New added 6" $\frac{1}{2}$ at
6 x $\frac{1}{16}$ & Extra Varnish position
3 - 8 Rounds -

45 = Wash face with
Alcohol & wax of surface
hurt -

46 = Now add one pair
Circular Mounds to test
rounds -

47 = Get up complete list
& type of clay forms
for reports.

48 = Put on the Thermometer

See Sample of Chalk
from Arkansas

Hoffman to use Zoo Mesh
for Kansas - see all material
for Shaking

at the office

1 = Ribey about getting a good
deal on for Carbolic in
Cans

2 = Meade on if ~~Cost of~~
125 15 25 lbs Cans
for Carbolic -

3 = Ribey tell our Myrtane
see if get at high purity &
offer this also

4 = Meade on - last week
300,000 lbs Carbolic
Exported to France (billed
at 125) - find who buys
for France - Now
remember that Fern who
works in Spain Paris
also the Italian & French
& Swiss who wanted
Acetylene

To Havana - Wyples about
getting Carl also see

6. Mercedes off last week
More cars expected from NY
to Uruguay 60 cars lbs
Sodium Sulfate 10¢ biller
also to Cuba 33207 lbs -

7. Emery Lee that alcohol
last week reported to
Frank 168 cars gals.
Value 67 \$33, Nic's low
price -

Hoffman speak about
Patish power + Luder
man - etc -

Keep track of machines
going + record
sent down -
One load of wood

put in the ~~truck~~ pair

Hoffman get power on
grounding for Mercedes
if reasonable get it.

Look out for cleaning
blanks + dirt on
V or blanky talk to
Moore + Kischer -
+ Man on other machine
I will inspect after
after take by Moore -

See Moore about
Hoffman's plan
striking edge
also level up top
plunge + adjust
to press -

Miller got Round of old
Rego ~~not~~ ready to go
to Belknap - want to
see what they are
passing

Emer - send off samples
of grades of Carbon
black, but no low pres

Make wear sign
in swamp field
last & run on small
part of new record
& see if the lat -
move it as soon as it
cuts - Run till
it shows that 5 mg
Lissch

When their ~~new~~ new
record goes out slip
should be used till
public clean only with
rag using only Alcohol
try Expts 1st -

One round blanks
 $\frac{1}{2}$ wet with alcohol
other not 177 then

Varnished a Run
through

1 Round wet with alcohol
 $\frac{1}{2}$ in all around run
& then var all over
another like old does
Varnish on made to
with $\frac{1}{2}$ then put on very
little al -

Baldwin - only
date Nov. 1922 B
Remains -

Edison Shoping	April Baldwin
" " 20	8.558.00-
" " Newark	1705.00
	4318.00-

Nothing reaches that the
vacuum was as well looks
good. But right afterwards
on the ground as they
shook the table a little
too fast. There is
not quite enough
weight on the
march from the
edge.

Have 1 vacuum change &
return 10 thousands

Speak to Constable
about the travelling
Repair men about
setting McChems
level so weight don't
run over to side on
smooth part

Recording stream
gauge in Boiler
Room for Disc
Dept

Emergency Dept we refuse
to sell formaldehyde
& 6/4

Hydroquinone 200000 lbs year
 Sulfur 500000 lbs year
 150 lbs "last of Ethyl
 1900 " MnO₂
 1700 " Iron borings

Metal 100000 lbs year

1720 lbs Phenol daily
 450 lbs Chloroacetone acid
 200 ? Benzoin alcohol
 Some Nitrite Soda & HCl
 Purified phenol made 1st


Material 20000 Blanks
 152215 daily

Old blank 1522 blank

TA Lac	2262	2467
Dist alcohol	1000 gal.	339 gal.
Para	40 lbs	14 lbs
Wood Glue	10000 lbs	10000 lbs
Lamp Glass	324 lbs	368 lbs
Phenol	2211 lbs	357 lbs
Sand Box	16 lbs	1 1/2 lbs
6/4	125 lbs	14 lbs
Negrosine	20	
Formaldehyde	1273 lbs	210 lb.
Galk		7413 lbs.

Saving is about 6000 per 200000

~~Hoffman Make 3 on 400
 blanks 4-3-1 1/10th Lac~~

~~4-3-10 Lac~~

 Extra rubber ring
 at x gettin' edge

Dip $\frac{1}{2}$ doz records
in 1" water at Edge $\frac{1}{2}$ of edge
2 hours in ~~test~~ surface

test the old time test
records in for surface etc -

Hard - don't ~~probe~~ face on
Edges so no to be sure to
water proof -

Know why only 16 records
walked ~~early~~ day
instead of 40 -

See Moore if you should
counterform blanks before
overfilling - also about a
look to prevent mould
brushing from turning

Try Reg blank on
hat plate also on
hat press plate to
see how much it softens
etc - also if Rollen
when ~~is~~ full clean
on -

Another ~~test~~ view
- ~~retouching~~ part,

Hard ~~have~~ you organized
the ~~Suspension~~ for
surface -

Take 60^g Turned (Label)
Technique pick out 2 round
gauls & 2 good surfaces -

Test a lot of these records
to see if rough. see also weight
water smooth water always smooth
This tells of the blank &
are all.

~~Let blank No Para~~

Let powder leave
Lump black out.

of Various Expts.
with powder
Save 100-Grain
for future Expts before
destroying powder

Put somebody work on
Repermuting Old Records
to get pulp or Shell Co.
Label

Find about ~~Label~~ PD -

(Get handled but that)
Can still make
Make acceptable

Get some more receipts
Blank records

Don't hold ~~Label~~ away
down so fine -

Halpin send reports of
surface more often

Halpin are you getting
records

My 4 1/2 ~~hours~~ ~~on~~ ~~the~~ ~~car~~

also greater ~~variety~~ -

3 ~~days~~ ~~using~~ ~~on~~ ~~section~~
on ~~trucks~~ - ~~red~~
Siberia ~~place~~ ~~less~~
Viscosity - ~~water~~
first

~~Shallow~~ ~~Val~~ ~~with~~ ~~up~~ ~~along~~
~~with~~ ~~at~~ ~~175°~~
- ~~New~~ ~~York~~ ~~in~~ ~~the~~ ~~state~~

~~Range~~ ~~of~~ ~~Conquered~~

3 ~~days~~ ~~4~~ ~~chill~~
1 ~~to~~ ~~less~~ ~~or~~ ~~back~~
least ~~surface~~ ~~+~~
~~water~~

~~When~~ ~~letting~~ ~~hear~~,
~~that~~ ~~recalls~~ ~~of~~ ~~new~~
~~worlds~~ -

~~Load~~ ~~new~~ ~~Worlds~~
~~for~~ ~~following~~ ~~surface~~
~~4~~ ~~for~~ ~~time~~ ~~feels~~ -

~~Reg~~ ~~low~~ ~~but~~ ~~extra~~
~~amount~~ ~~around~~ ~~Slope~~
~~of~~ ~~Val~~

~~last~~ ~~back~~ ~~by~~ ~~water~~
~~navigation~~ ~~for~~ ~~got~~
~~ditto~~ ~~does~~ ~~from~~
~~acc~~ ~~of~~ ~~June~~

~~William Purcell
about to transfer and also
in the ~~iron~~~~

Test 12 old 12
new records same
records - for
Reinforce

Charles - if we keep
making which couple
will lose and not
new - he is a low
ignorant british kind
of man

Ceres Blue = paid 2³⁵ lb
now 5⁷⁵ none to be had
for Dyson structural Reinforce

Maintain Gasoline Tires
etc we should invest
on monthly payments

Daily to make a lot of
small fusions using
Zinc dust in fusion -
also Gasolther report
Condense the vapors
which come from fusion -
all what they use

Also try the Magnesium
dead dry - get the best
→ 310 + use sleep and
add the salt cold oil
once also for 2 months
+ dump it out to prevent
oxidation of the panel

Get from Mambour Coals
General #19 2 plants -

Process duplicate -
Pass Benzol thru hot Cobalt
peroxide with NaOH .
also dump MgO Hydroxide
black by heat with NaOH .
 NaOH should oxidize the
Benzol to Phenol

Daily - Pour out some
phenol from fusion -
weigh out 1 lb. in
cold water - 1.66 in
boiling water - see
which gives most
phenol -

Drop test 1/2 Reg
Records -

#1 Cost 44.45

#2 " 41.85
with new dyes -

See if there is any acetate
(Rosin) sol in alcohol -
for blanks.

See if SO_2 will be
absorbed by Carb (lower)
from Carbazoying
Saka -

Speak Masow in re
Chalk from Saka
Carbazoying -

See of Caustic Lime
That will fuse together
4 parts phenolates &
or lime alone in briquette

Maurand - Maurand Dept
5 to 6 cheap gas Leds
1 month's experience
How about other Dept's Leds

~~Charles E. - spirit of calcium
Cabinet of iron the
Lentle~~

~~Charles E. Why not
Keep present bldg &
Extend 1st L of bldg
2 stories upwards
as side track~~

Calycines for thermal
fusing

Dried Slaked lime
powdered Caustic lime -
Chalk

Cooper hydroxide

Nickel chloride

Sulfide Soda

Sulphur

Ferric hydroxide
Ferric "

Ferric Chloride

Nitrate Soda

Zinc peroxide

Mangan Peroxide -

any of these & Peroxide

1 to 2% of each to 100%
Various Proportions.

Note times & surfaces of
uncoated (2) Minerals

~~10~~

1013

find a good ~~second~~ record
with ~~any~~ ~~right~~ ~~blast~~ ~~for~~
fracture to begin the start,

get the ~~supposed~~ ~~reworked~~
records from ~~branches~~
also has been ~~found~~
found ~~separ~~ 2 ~~Records~~
more for my inspection

Moore = better than
hydraulic pressure on
both ~~Blank~~ ~~in~~ ~~Print~~
pressure ~~in~~ ~~print~~ ~~oil~~
+ tested daily -
Records ~~get~~ ~~thin~~ ~~under~~

Let ~~all~~ see if you can
outline the isotherm
Mathematically Daily
Distilled from ~~plum~~
still residual -

Also distilled ~~some~~ more
also blew some over
with steam -

See how Mason get along
with ~~ST~~ ~~in~~ ~~the~~ ~~CH~~ ~~Co~~
Returned ~~of~~ ~~equal~~ -

#2 Carbide play hours to
reduced ~~to~~ ~~one~~ ~~of~~ ~~one~~
Mason - ~~by~~ ~~the~~ ~~use~~ ~~of~~ ~~2~~ ~~stills~~ -

Ask Kammberg how
much ~~plum~~ he gets
per lb of ~~Benzene~~ ~~from~~
soda -

108 have 4.6% of hydrocarbon
in the residue of petroleum
still, #2 plant

Take 10 with liquor from
Neutralizing Expt to dry
& use this dry residue
in a new fusion in place
of Benzene sulfonate Na -
See it is well Benzol'd before
compressing to dry -
Benzene sulfonate Na may
escape in 1st fusion -

Try it - get discard mould -
Delish. Then try putting on
Reg blocks a taking off to see
if radial scratches will be
made & also if radial marks
or a hollowing of the front 1/2
at 400 times takes place

Have a turned wax blank
grinded & pulled off when
1/2 of head thick to see if
we now get holes like
we once did.

Also with the mould we
get polished put some
pieces of var on - lay
about get scratches disappear
& brush some on they do
not & then look for places
by eye & Micro -

Dont chips come from pitting
pin in hole,

See if records made in square
Edged mould have said
starts radial marks -

Every section of chattermarks
in working mould records
any longer -

Can't be the record in taking it
out of mould scratches it,
try it 150 times after polishing
Fred & A -

Records give me a second
printed just before polishing
& just after

One load dried 60 minutes
 $\frac{1}{2}$ Convex down $\frac{1}{2}$ Convex
up - print & see which
records are Convex &
Concave -

One curious thing is that
 $\frac{1}{4}$ to $\frac{1}{2}$ " of lines the record
seems to all be closed up &
disturbed, ^{the} ^{maths} ^{between} $\frac{1}{2}$ "
in the grooves a smooth
This is independent of the
Scratch marks - has same
appearance on smooth part
of many records looks like

more graphite at about
abscuring the Challermarks -

The wire brush gave the
same appearance to the metal
master & it look as if the
Ends of Grafeling brushes was
bitting the Celluloid -

Investigate - see how it is
done -

How would it do to polish
Celluloid after printing &
before grafeling - S S

Note that it may be done in
polishing if so they will
show Cochrans Matte on a clear
than minor scratch point,
get some of ^{celluloid} prints that
rejected & not grafelated to see
if in -

Grafite a celluloid print
by rub it by hand & see if we
get the matte

Spk. Mac if he profiles same as
he did long ago with silk -
See how he does it.

Find out from Emory about
or challenge in storage of different
lots & Cant we get a mixture of
all shipments from Wanchow
also wood pulp -

Let's get gal. sec. covered
Shenal from Hoffmann &
redistill C see if can get
it right M.P. & Color &
Crystals.

Let's describe phenol in
Water containing NaCl or
Electrolyte. See if get ~~more~~
Incl. to phenol

Do we use the same cloth we
always used with the Cellulose
2 pieces - 5, 5 to drink together

Look at some of Hayes
Celluloid prints under
Micro - note of 100 $\frac{1}{4}$ " matter
translucent -

Hoffmann let the Shellac
var soak longer into Wood
pulp before drying -

Would be log. Entirely
with chalk see if swell
with water. dills
entirely with wood fibers

Print as soon as made 6
rounds of blanks to see if
old blanks get hard by absorbing
Water - Also put 6 rounds
in box & press it for 6 days
so air don't circulate - ~~but~~ some
how

Keep at Simpson till we
Salts the deshed blank
by -

Get 1/2 doz blanks flat &
Steam one side - (10) 3 have
sides & 3 soft sides, & see if
it deshas them & how -
if steam ing brush with
water -

See if the 10 cent ~~red~~ has
swollen - ~~no~~

Test the old 2 month old ser ends

Its probable if we use fresh
blanks or blanks pressed from
alms wont have so many
pull outs -

Wht about ~~repair~~ mm tooth

(When we were getting our
blanks, no pull outs &
little deshing & Very
Easy Edges - The outside
Edges were soft now they
are hard as shown by
Shims & by Solping -
Its due to change in
loading - We see
them, softer by calcomy
loading & see further on)

Moore's Experiment

Cooled 6 min
at start Calcomy of deshing 045
after 18 hour of 26
Cool 10 min
Calcomy at end 033
after 18 hour 055

20

over

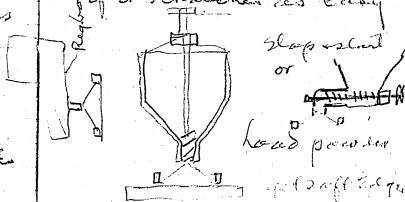
1111

The top is always dished or
 Concave no matter how you heat
 them - it heats on don't help
 Only way is to cool all
 patterns equally ~~to~~ which is
 not the case now middle is
 warm - Must be above
 Cold or they will dish
 badly -

Think rims of our bullets
 too hard should load
 in center - as we did by
 having thin Edge some
 + not so much pull
 will make 4 Rounds
 Loaded in center by a
 point 4: Spread by a
 Spreeder

See that Inspection
 of Records Zya-Mechan +
 find in above days

Oxidize face of a Copper
 Mallet by heating it in
 muffle till black + see
 if it scratches as easy



Get some polished Copper
 Pellets expose to heat +
 Phosphorus, tellurium,
 Iodine, Bromine, Arsenic

Bluish by plating on Zn Cd
 + heat to amalgamate.

Devise a soft position
on platens for moulds
so they don't hit hard -
a spring or something like
that.

It is impossible pulling
on blank & mould makes
Semitubes 039 & some
045 while it is possible
in taking off ~~them~~ and
possibly ~~devise~~ ^{top} ~~to~~ ^{is} ~~defeating~~ ^{is} ~~the~~
lock out - or water +
Spittle makes before
Varnishing as this
is almost ~~impossible~~
to make Snaps -
Try to make them
both before + after
with Water + Spittle.

Press a chalk along
blank & ~~chuck~~ & ~~leave~~
+ see if swells by water

Make 400 mixing +
+ lampblack 1st + then
Chalk as we did before
+ see result of
water test + % of K.

Watch the Record in
New mould ~~to~~ ~~see~~
Semitube ~~in~~ ~~the~~

Watch 1 has instead
1 1/2 up to radial scratches

Patent New mould 5gr Edge
show Dowel pins -
Center Waller back + all
details - ~~Revolving~~ off
blank -

+

Dinner dishes

Leaves steep in water from which
a mass of gas would
come ~~out~~

Dilute the shavings from
Cambria with water
then agitate with
Benzol - Decant off
Benzol - ditto
Neutralize to a d.o
Same thing -

Use great bit of a bottom
plate for holes + dents
Hoffman plates -
Also what are they
clean with -

See if the No 2 Ketones will
develop Cellulose 30 Kals
Can use -

No 1 Ketones 100 gal
No 2 90 gal

3 blanks of ~~removal~~ one
piece glass or similar
replaces the ~~blanks~~
needed - note position

Get copy of ~~data~~ live part
in Newark paper for
the tables -

Get record Dunderfeld
has the new Condens
specimen - wash it
with Kett -

Did we apply for a
pat.

It has been ~~the~~ idea
with ~~the~~ 100 -

John H. Yocum
325. Broadway St

Newark
Pat. about No 14

2 Helms solvent
fracture casing between
100 & 150

+ 150 & 185 lbs. oil
is very phenolic in character
Distilled from wood tar
no excess or water soluble
stuff in it - 100 gal

John Bernegger
Wassell Lodge
Roxbury NY

Erioglaucine

Dry Di-oxyl phenol -
residue from phenol still
with formaldehyde see
kind of Resol at market

Newark N.Y. received
4 Bales 800 4 750
25 700 4 650 -
4 600 -

3 bags grams 3 liters
of final centrifuge liquid
had about 800 grams solids
including H_2SO_4 salt -

22.35/l of liquor is solid

Patent ~~for~~ ~~the~~ ~~in~~ ~~the~~ ~~drum~~
for ~~the~~ ~~drum~~

Water Sprinkler for

24 Bldg roads -

Pay ~~the~~ ~~text~~

28 cents hour -

Have Dally take Galah over
Sulphonated Benz +

Work it our way - home way

getting Benzene sulfonate to be
from Ench - Then weight

then fuse + acidulate +

Benzolite + distil
Ench -

Re Crystallize Some

@ 24 take if can

make it USP

Emergency Take up will
Conkowitz Co. They
will buy our Conkowitz
blanks all for
1. Fisher will account
do it with brackets
say 20 Ton -

Emergency - via alcohol
transmission gets
too much material
Can't we arrange
for reconditioning with
millions -
also get prices on
steel -

Pick out bowed mould
plates bad & make
4 rounds - delta
flat plates - see
if bowed plates
is cause of low
% perfect -

Redistilled phenol
between different
BP - to make
para-nedophenol
Hcl

Erioglauine

Trade name of the dye stuff
obtained by Condensing
Benzaldehyde O Sulphonic acid
with Ethylbenzylaminiumsulphonic
acid, See J Soc Chem Industry

Base, English patent
25128 - Graham + Schille
= Annalen 299 - 347

See about Condensing

4 boiling down
4 Costs = # why it was not
tested for full condensing
with lalaly

See how Meta Para is made

1915 Kammerhof found from
Crawley's Food research
1916 - 2460 "

Formula

100 gm Nitroacetic acid
500 " Nitroam 13 P 130
250 " Iron
200 " gum 50° Brown
Soda lys - heat to 130 till
all reduced - filtered off
Sol crystallized out
Completely colorless
all filtered Sol decant
used for further reduction

~~Parameciums~~

Almost usual 920
Very Sol in NaOH.

Hence we separate NaOH
As also with Parameciums from
mud - then, either success
by just maintaining the
NaOH, or by adding
of this - This will
eliminate the electrical
scheme

Try heating Amids base
also. Parameciums
in water lead to
high temp, + muds
Calc also

~~Parameciums~~ Amids Sulfon
+ precip by lime -
also Salting out

Condensate Wooded
Cigar Co. -

~~Broad about Tenn
Power Co. or
Chemicals Patrick
+ Salts + Woreholes
for chemicals~~

1" Green 25000 waves
2000000 cycles to 1000



Received in bridge



Resonator Tuned to 25000

cycles
Microphone

at 25000 cycles - No Echo

return to air - if you
blow there is one
short circuit

probably lay of
return was to
sufficiently distant
bridge -

2 Rounds Bevelled
blanks only Varnish
flat parts

Also try lay with
shellac to keep it
flex -

Try filler & alcohol
to lay sol. of amide
alkaline then animal
membrane -

Naval Lab
Average →

100 acres -

Original Aluminate 300, 200

~~Sept 21 1916 -
Thanks Sulphate & Sulfite
with Caustic soda in solid
state crushed the rolls in
just damped. They of~~ No

~~In working with alcohol
use several cans heated.
The fresh solution is added to
the can nearly full of i-neds
or Para & this to next one
less fresh soda, then the oil
will always be saturated~~

precipitate $\text{NiO} \cdot \text{H}_2\text{O}$ with just
right NaOH, then dry off &
draining. Make some test cell
take the remainder of acid with
stronger NaOH make test cell
400 ohm till its white or ng

~~Understand why this apparatus that is
presented at company, or apply
to getting NiSO₄ to be
a charge hot -~~

~~Dehydrate NiO by hot strong
NiO. Then find the way of
neutralizing of 400 ohm
resistors.~~

~~Its important to get
all the under out of
i-neds & then
oxide black~~

There is a find

Trimethylsulfonium hydroxide
($\text{CH}_3\text{S}^+\text{O}^-$) is said to be soluble
without decomposition. It is
as strong as potash, resembles
later so closely that it absorbs
 CO_2 , cauterizes the skin
Drives out ammonia & gives
salt with acid even with
hydrochloric acid. It is
very soluble in water & alcohol.
P. P. Berman & S. S. Bingham

50 - 150 - 350

Enamelled -

Stinson - Elyria

Maintent

~~10 lb. - 10 lb.
100 - 100 - 100~~

~~Suspension~~

~~Thompson~~

~~About 10 lb.
(Baker) if it comes out
himself will be another 10 lb.~~

Sawed trucks Boric, treat
with CO_2 + then get out the
salt as Yelinski & more sol
Vicon Base, also try phosgene.
Boric rather, look barrels to
get a very sol. Boric salt &
neutral line out - 1951

Feb 22, 13 at 150 1950
 Salt 1200 lbs @ 80¢ 2400
 Coal 750 lbs @ 50¢ 1500
 \$5850

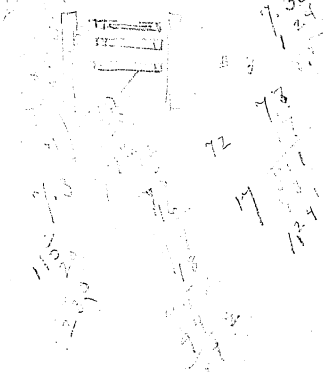
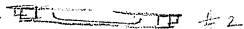
Electric added
 Makes Salt + Coal
 Most important.
 When we also consider power for
 grinding -

13
 150
 650
 1300
 7950

13
 60
 7900

750
 13
 2250
 750
 9750 (45)
 8000
 1750

Prize 5 1/2 cents



Kammerhoff agreement
July 22 1913

4000 lbs day production cost
27 cents (400 lbs) for all
beyond 1 cent lb for increased
production above 4000 lbs daily
+ 1/4 of reduction below 27 cent

P 4600

1350 —

2
—
2030

4600 —

910 - $\frac{5000}{8}$ $\frac{40}{2000}$ $\frac{1}{8}$ $\frac{1}{8}$ 33 tons
 2 1.7 Cents

$\frac{2000}{8}$ $\frac{250}{2000}$ $\frac{1}{8}$ $\frac{1}{8}$ 200 lbs

$\frac{8000}{8}$ $\frac{84}{845}$ $\frac{1}{8}$ $\frac{1}{8}$ 33

Na No 16 $\frac{529}{489}$ $\frac{1}{8}$ $\frac{1}{8}$ 75.6

529 $\frac{1000}{1030}$ $\frac{2975}{2240}$ $\frac{1}{8}$ $\frac{1}{8}$ 2 $\frac{84}{48}$ $\frac{1}{8}$ $\frac{1}{8}$ 2/127 184

1000 - 65

1000 45-3-48 480
 350- 30-3 38 115
 670- 30- 30- 195
 200 68 68
 1500 68 68 1156

$\frac{3700}{194600}$ $\frac{1}{52}$
 $\frac{1700}{68}$ $\frac{7400}{7400}$
 $\frac{13600}{10200}$ $\frac{2200}{2200}$
 $\frac{115600}{350}$ $\frac{33}{33}$

$\frac{650}{30}$ $\frac{1050}{1050}$
 1951 $\frac{1050}{1140}$

**Notebook Series -- Pocket Notebooks
Notebook, PN-16-11-15.1**

The dated entries in this pocket notebook cover the period October 1916-January 1917. The book was used by Edison to record ideas about business matters, experiments to be tried, and other tasks to be performed. Some of the items have been crossed out and marked "Ent." Included are experimental notes pertaining to chemicals, disc record composition, batteries, and the transmittal of photographs by telephone and acoustics. Also included are notes on military topics such as hydrogen detectors to locate submarines, trench warfare, gun position triangulation, night photography, and range finders, as well as other war-related matters such as German chemical production.

Among the business-related entries are estimates of projected sales of Diamond Disc and Amberola records and a notation regarding the possible resignation of Carl H. Wilson, vice president and general manager of Thomas A. Edison, Inc. The entries at the end of the book appear to be clean transcriptions of entries from PN-16-11-15.2. The last page contains a notation concerning Edison's agreement of July 22, 1915, with H. H. Meno Kammerhoff, supervisor of operations at his chemical plants in Silver Lake. Other Edison employees mentioned in the book are Charles T. Dally, William W. Dinwiddle, Archiebald D. Hoffman, and Sherwood T. (Sam) Moore, principal assistants in the development of disc records. The pages are unnumbered. Approximately 150 pages have been used.

~~Best way to prepare
Alcohol ammonia solution.~~

~~Medium Benzene~~

~~It is not to be used by
looking to the amount of benzene
used - depends on the type of
material used. No~~

NH₂ Tis - Can remove tin
by sulphuric acid Hydrogen
Amide -

On treating Nitrosophenol
suspended in Benzol with
Phenylhydrazine a good
yield of Parandophenol is
obtained - a Resin is formed

Uranium at ordinary temp gives
Hypochlorite base, at higher temp
gives Chlorate by ~~the~~ ~~action~~
Possibly Chloride, with even a trace
act catalytic & oxidation of NO_2
is really not a ~~very~~ ~~practical~~
but if heat too great Chlorate
forms & we get poor change
130° fails only $\frac{1}{2}$ the Capacity

A Resin is formed when
Cyanamide acts on Acetic ~~Acid~~
Aldehyde, Water & also on
Formaldehyde

Amaghtyl is a Resin -
made by action of ~~Perox~~ ~~Manganese~~
& Sulphuric acid on Benzol
This should Condense with
Formaldehyde

Benzen

Benedict's

To obtain the Amide base
Lumières Compt Rendu III 6 1202-1205

Take Pseudohydrochloride -
in Conc Soln pour it into Conc
Sol Sodium Sulfite - Wash away
with Conc Na Sulfite slightly acid
to Phenolphthalein previous to excess
Sulphurous acid - Stir for about
long time -

Nitro-compounds are reduced
by Arsonite of Soda -
Use Stirrer & reflux tube & heat

Dip sheet iron shapes in
Condensed Var & bake to harden

Nitroaniline & Formaldehyde
Make a Varnish

Benzen

Hydrogen can be absorbed in great
Quantities by Lycopodium, but not
etc. with such effect, as the
a hydrocarbon from shark oil
3.311 gm. diss in 35 cc of ether
in about 1/2 g. of oil, 1/2 gm. of
Aluminum chloride solution
Hydrogen reacts under mercury
catalysis in 2 hours & 70 ml
It absorbs 1120 cc
See 1st Journal of Substitutional
Organic Chemistry, 1912

There must be a certain amount
absorbing material more
than this.

Erioglaucine made from
Benzaldehyde O-Sulphuric acid
Condensing Ethyl benzyl amine
Sulphuric Acid - Eng Pat
Graham & Deterville 25128 1901.

One chemist says can't make
Metal base by direct methylation
of p-aminophenol but has
obtained it by heating
p-hydroxy glycocine at about
220 C only

See if our Myrtone is a
acid well neutral. Cotton to
Cellulose -

Make 50 lbs Resinate Magnesia
to try substitute for shellac
in blanks

Try $\text{Co}(\text{OH})_2$ entirely so can
make a reasonable battery

Pima cyanol Dye
+ Dicyanin -

Butler's sensitive plate so
its useful for photography in
infra red - goes up to
7000 lines in
infra red

Precip $\text{Ni}(\text{OH})_2$ with just right NaOH .
Take some make 2 test cells -
then some more boil with strong NaOH .
make 2 test cells - then boil more
& make test cells & keep on till
 $\text{Ni}(\text{OH})_2$ is white -

Find the most rapid catalytic agent
for decomposing H_2O_2 so can put
in $\text{Ni}(\text{OH})_2$ -

Rehydrate $\text{Ni}(\text{OH})_2$ by strong
 NaOH till its white & moist
then find a solution or means
of rehydrating it & if found
it will improve the cells -

Experiment on $\text{Co}(\text{OH})_2$ as a catalyst
for $\text{Ni}(\text{OH})_2$ in battery -
get it high capacity -

Find out what Resonance
really does in our cell.

Micro Chem man work on

Reactor for Desc Munjac
Pernate Magnesia
Mantle Regal

Rare Earths
found a NaOH combination that
will dissolve more Zinc
also an Electrolyte dont dissolve
Zinc but the oxide of metal
with it + dont affect copper
to at out Cu returned globe, steelium

Data on Brownith cell

with Cathode Positive tube
20 Cu increase
for Submaxima
also Reg Co for Centos ~

~~Handwritten scribbles~~

Make Eric

~~Reactor for Desc Munjac
Cell Dept get out~~

Dec 9 Oct 15 Metallurgy
Chem Eng - Electrolytic Zinc
lost from Zenerite -
1 lb 3.3 KW^{hr} 1000 gms zinc
to powder 300 amp 2000 ft
rotating drum 5000 rpm
NaOH 20% 60% Zn at 1000
1 1/2% at 1000

Best is 70% NaOH saturated
with ZnO 3 Volt

All the above in Cornwall
with reducing agents
Chemicals in Alkali

W. K. King

Green Chemicals Imports
1913-14 in various prices

lbs	\$	
11388	3414	Paraphenylenediamine
55245	16991	Benzidine
66596	25140	Hydroquinone
10631	1684	P-Aminophenol base
1444.772	116.628	Aniline oil
1060	164	Acetanilide

This is for
Mystane $5\frac{1}{2}$ cents
Aniline oil $8\frac{1}{4}$ ¢
Acetanilide $15\frac{1}{2}$ ¢
Phenylenediamine 31
Phenylenediamine 29
P-Aminophenol base 29

~~2 weeks ago Hudson
made a report on dry
cell -~~

Best for Pb NiOH etc.
except for the red reaction
then best to compare
the Pb & Ni in the cell
this leaves remaining
Pb ultimately converted
to each particle of Ni -
Can remove by desiccation
of O₂ etc. - perhaps
other ways also
frustrated at comparison

Try sulfate of Potash in A 4 Cell

Try same with Cobalt
Negative, K₂SO₄ + also
K₂SO₄ + K₂SO₄ -

Try same with other organic
Salt phosphate, see in our plaining
Solutions - Try acetate
All kinds another Copper salt
Electrolytic cell with atmosphere
Organic Salts, etc. & Co

Try mixed in large proportions
also neutral in case Copper
with a little alkaline in
neutral

Try the general phosphate of
Copper with Electrolytic
for plaining & also
other salts of Copper
acids

Leland's - See if possible
plumbate can be put in
Leland's alkali
Manganic oxide with oxidant
Copper sulfate V Oxidant hydrous

Try with precipitate with NiSO₄
cold dried salt precipitated cold
then heated, would a top
crystallizing

It is possible NiO₄ crystals
could be prevented by precipitating
with another salt & that
Salt precipitate gradually
is added until then we would
have the microscopic NiO₄
particles. However, this may
be function of the works
and in small cell but not
enough to begin to do it in
large cell.

Make small Pb cells which have
only same amount of Electrolyte
as regular has in big cell -

Possible Explanation why
Reg Cell Pb holds no better
than Reg Lead, though as
Pb is working out of the
electrolyte $MgSO_4$ precip
Cinnabar generally

How Zinc relation
of a K Scheele Zn salt -

Down $NaOH$ was
difficult. No effect &
replaces Zinc, & is
^{very slight}
expensive. $ZnSO_4$ - Zn metal
dissolve benzoate &
then lead & dissolving

out Zinc with H_2SO_4 ,
light porous

Belande Try in Electrolyte
large amount of Zn
with different kinds
to see if don't dissolve
near Zinc SO_4 -

Try a double cell plate of
Bismuth Zinc. These react
to red iron sulfate -
then boil out Zinc by
hot $NaOH$. There will be
some Zinc left but this
will react iron giving
solid Fe_2O_3 - This will
give a deal of porosity
although brown may be
less pure. Could try
station, & lead, so would
out of cell after oxidation

~~Wilson - Myxococcus~~

Make a series of iron sulfide
mixed with lime Ba S₂ etc
with a quantity of lime than seed
This finely divided the first the
Ba S₂ or Ba metal not dissolved
in the iron sulfide solution so they
do not react at dense, ~~the~~

Amount die ~~press~~ or dark
of color ~~and~~ ~~no~~ ~~heat~~
acts + note

test for ~~iron~~ at 212
for 1/2 hour -

Micro test for ~~hydrogen~~ ~~color~~
Color, both ~~hydrogen~~ ~~color~~
top - ~~color~~
test for ~~hydrogen~~

~~Note Vase ~~acids~~ on the
several times ~~several times~~
scale -~~

~~In the ~~acid~~ ~~acid~~ ~~acid~~ ~~acid~~ ~~acid~~
Why don't this ~~acid~~ ~~acid~~ ~~acid~~ ~~acid~~ ~~acid~~
so ~~acid~~ ~~acid~~ ~~acid~~ ~~acid~~ ~~acid~~~~

~~Note ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~
Temp ~~acid~~ ~~acid~~ ~~acid~~ ~~acid~~ ~~acid~~~~

~~Notice ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~
black ~~acid~~ ~~acid~~ ~~acid~~ ~~acid~~ ~~acid~~
no ~~acid~~ ~~acid~~ ~~acid~~ ~~acid~~ ~~acid~~~~

~~Notice ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~
should ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~
+ ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~
Varnish - it may vary
greatly in ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~ ~~hydrogen~~~~

Heard - test numbers for
simultaneous to vertical
There is a big difference -

The land to ~~be taken~~
Does come ~~to light~~
inside of big round bed
This is ~~not~~

Paint Violin strings with
Mircocellulose with Rosin in
also other high frequency
various also with ~~distal~~
Silicon etc for the high
3 ft in out stand of paint the
Bore ~~is~~ in ~~shape~~ in ~~case~~ ~~of~~ ~~the~~
then ~~microcellulose~~ ~~distal~~ ~~order~~ ~~presumably~~
chalk in pores also some ~~resonance~~
soda then ~~also~~ ~~acid~~ ~~the~~ ~~leaves~~ ~~rosin~~
in pores ~~also~~ ~~rosin~~
H ~~an~~ ~~an~~ ~~an~~

strings with
formaldehyde

E string section
Borated from Coar &
finer ones -

Brench -


36 ft tunnel below
water level filled
with water to broken
in brench fighting

2 tunnels to ~~be~~ ~~drilled~~
position of a ~~to~~ ~~be~~ ~~drilled~~

Several miles distant

found position ~~be~~ ~~drilled~~
note def velocity of
real sound & the
Extra pieces of the
first wires to ~~be~~ ~~drilled~~

Road open 5 miles away
arrangements on road
showing with telephone between to
get position.


want to stop short of Zn
barrier but lost thru
longer distances -

Reaction is very
Zinc Reduction temperature
must reach a point
where hydrogen ZnO
is very unstable in
water its partly sol
in acid

Have Mitchell try of small
test cell than has been run
some time & has fixed capacity
then change the amount in
10th of bulk of H₂O₂ &
test it. closed for a
hours & discharge
but before doing this
make some test
with about H₂O₂

Pack a lot of CuO & Zn
plates in Beckman
Smallest amount box
pass cold H₂ then
bring up to red and
pass for little gas say
~~2~~ will get through
water to reduce 2/3 of
the Copper.
Cool in H₂ & test -
pack so it must pass thru all
plates -

John Conable to look over
report of Copper dmy cell
see what he thinks about
reaching for info

Don't get a deposit 4/12
leg to give 2 or 3 new
jobs up, working up a
loading schedule for
Disc blocks. In seed row
new down 75%
or more

One of the ~~new~~ ~~chances~~
was planting (or paid)
to get it fixed with
chemicals in the
Bath —

find the Enigmas plant

Yellett - 1/2 doz Mygaleis,

try planting cell ~~Line from~~
Linnets,

Send Smith over to Melby -
Hellerberg or Linn to all
dealers to get samples all
ways with hand
split last days is now

Daily John has given
and R Chlorate a little
to account for seedling
stippling is (repeated)

Daily get above Kammuff
Linnets. Repeated for the Linn
Add seed account of Linn
+ please get %

with 10 grams Myrbane
25 " Zinc
6 " calcium
30 cc 30% NaOH
20 cc water, about just in reflux
got thick & brown in 5 min
got

1st 4.260, white H₂O₂ on benzene
2nd 4.430 " " " "
found 4.790 Azo red sample.
not generally known to be
real danger - apparently
Zinc is sample & has very low
yield should be the realistic way
7.450
got including Azo
13.5% yield

H.A. Metzger's Hava 900 Dyes will be
2 inch brick got out samples of all
will have about 20 Friday each company
a group 122 Hudson St
See Mr. Clarkson

Bayer & Co 117 Hudson St NY
Will find out from Carichow at
Albany if they have any samples -
let you know Monday

Casella Labs 9 Elm St
182 front St NY
Long steps & run into the building
will be impossible to find much
samples of all - report to
Kraus whether you could find
9 Elm St. Albany
or just what you want
See Mr. Ludwig

Hohenzollern Co
to 213 16th St
Don't know to submit samples

Hohenzollern Co
107 Underhill St New York

Might be able to use Xiphonid
seed samples in good location
Lots LOT Miller about what
samples I got you want

Gersonheimer Co
107 1/2 1st St

Mr. Schenck said to see
the records of Dept 4 if you need
in date what class of Dept
I want he will try to help me
has some from 1st district
I can't see it because of
Xiphonid

Hellerberg
Hankwitz Place Newark

Wants sample Xiphonid price
will see what Dept 4 will do
it's very difficult to locate
He will collect some samples
used them for long in a good
at says

Badesche Chem Co -
128 Duane St
Mr. W. P. Pickhart

Willing to answer me about
you but say so many diff
things would not know
what to send you but
will give them an indication
will be glad to help you
(out)

Diamonds Sept =

1 Cart 32 possible splits	
after crushing	14.46
" Chipping	3.54
" Drill set	3.54
" Machine set	3.54
" Roughing	2.43
" Grinding-Turn (flats)	} 1.80
" Reground	
" Round polish	1.59
" Turn a cutoff	1.59
" Assembling	1.56
" Beffing	1.56
" Reaming	1.55
" facets & gage	1.54

Standing cost 14.46 points

75.6% lost in chipping

7.6% lost in roughing

4.3 lost in grinding, turning, & gaging
reground

1.9% in reaming & operations

In Benzidine Exports
Reducible Mycobacteria -

Req up Dark room like X-ray
for photo Export -

Test cracking plates in Diamond
Cruiser. Used quantity New
Say ~~Orthocline~~ having mica
Crystals & these in Gold
Crystals (like diamonds)
when the ~~the~~ Diamond

Polished } Copper plates are
shaded & added in the
in "Mach set" - front & not
ground to dry fit and a shaft -
shaded the ~~the~~ government
~~shaded~~ with light
unground plates also much
one exposed to dry fit grinding

turn red then purple then grayish
black, soon when plates.
Coated with white precipitate
several coats were obtained
Sunlight causes Emf 0.1 Vol
& Current of 0.2 amp been
obtained from cell containing
2 plates of Fe 6" square
the plates exposed to light were
oxidized in place the other
at dark night.

Ref. Elec. June 14 1916
12 pages. T. W. Case

With other oxidizing agents
litophane blue showed up at
at night with standard heat
collection -

Think we need of Camera
observing this sort of thing,
the Spectroscopy made by
a Spectrograph

length of Red waves of light
 $\frac{1}{33400}$ of inch - to $\frac{1}{65000}$ inch
for extreme Violet,

lightness hence may be the right
thing -

Diazo-compounds are very
sensitive to light which induces
spontaneous decomposition even when
the solution of salt in water or acids
in alcohol, some diazo salts sink
at all decompose at 10°C -
This would be good for
plants by standard heat
in presence of something that
would give a color with
the diazo decomposition
see *Diagrams See Chem Soc
Transactions 1907 91-35
and see Chem Abstract 1890 9 1001*

also for other exceptional decomposition
of diazo compounds -

Boer 1874-7-1061 - 1884-17, 274

1896-69-1327 - 1902, 35, 89

Chem Soc Trans 1896-69-1327

1902 81-77 1905 87-5

1906-89-19

Diaz salts are highly explosive

Diaz formate of lead
excluding water,

Formic acid and other acids
decolor.

Diphosphorous acid

Diazobenzene -

10.5 parts soda in 30 parts
water -

10 parts N₂O

5 " alcohol

17 " zinc dust added

small portions at a time

The solution boils & it

should be kept at boiling
point while or during
period time is added

Now cool dilute with
water, then should
be kept below 15° Cent
Carefully acidified by HCl

Hydrogen separates &
should be filtered

H₂ = the bag is hung
to prevent by stirring with
stick

Benzidine MP 122 (127, 128)
is a para compound
when oxidized gives a brown
gives a number of color
reactions. Cf. Bar-Kipman
Ferry's Grand gives
diff. solubility

Benzidine dye group
dyes for direct
Cotton not very suitable
to light

See Dictionary of Applied
Chemistry Vol. 13 p. 220

Diazotype photography + no silver

Practical - Diaz process
by Cross + Rowan
can get any color by using
diff. developers -
No silver used

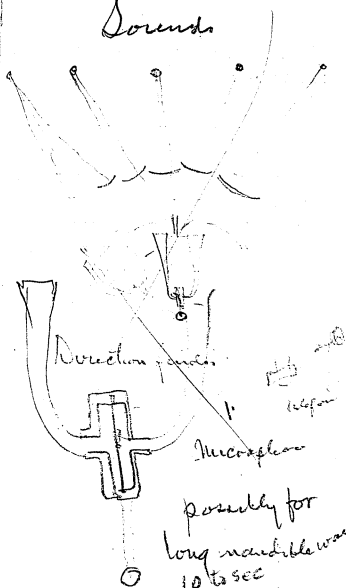
Paraphenylenediamine HCl
should be very sensitive
to platinum pen on paper
with contact.

Waxless inks are
reflected by metal
+ some other material
should be able to get
reflected ink on a non-
transparent

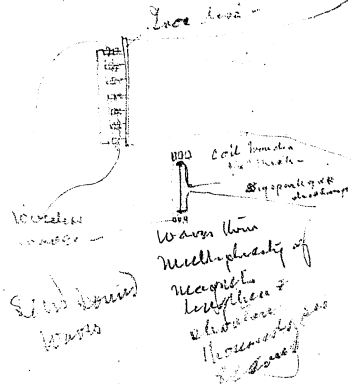
Get most extensive work
on ~~Wendell~~ -
Wendell get more lengths

Let Beckenbom & Elliot
Chem Dept. this project
does it increase discussion
like National Abolition

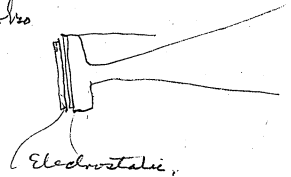
Sounds



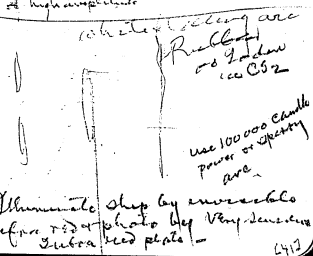
Account of Younger Balometer
 in Annals of the
 Astrophysical Observatory
 of Sunilhoran 1900
 Vol 1
 Can measure $\frac{1}{1000000}$
 deg Fahr



Also



to send sound waves
 instead of Electric
 waves by wireless
 apparatus
 for radio - 20000 sec
 of high amplitude





Echo second waves in water
with (tuned) Resonator for Echo
+ microphone - this will also
give distance accurately - for small
distances of course

Should make the portable phone
for Equator at Sandy Hook -

of for triangulation + finding big
give a differential of form
rather than of vertical
Collapse - Use the Earth
waves. Pairs sounding toward
against lamped Earth inside of
Trench

March 1918
March 1918
March 1918

↳ Otto how about
Resonator Mg
Make some powder
of a blank
and all make the
small dyes - if too
brittle or too high ballam
add fine Resin in alcohol

Where is the Mercury
In that as well -



Wireless
 Although built
 using rubber
 & to make

& Effect

Rated, not
 round but long
 think is sensitive

Treat dialin strings where
 bound on the top halves
 by formaldehyde, or dyes
 or potassium permanganate K₂O
 or alkalis - also soaked in some
 water softening, crystal & also
 Colloid - to increase friction

Chrestman Amalok HCl

150 gram cost base

100 cc HCl 22

150 cc water

5 gram Bone bleach

1 to 2 gram Tin - Bail -

precipitate in 200 cc

22 HCl - filter in bag

Nov 25 1916
Diagrams by Categh

~~White wax~~ Disc coated
gelatin photo raised a heavy
cover. Retained with force
250 lbs to make the
second marks by expression
following the plate.
(transmitted by telephoto
& this work recorded)
diaphragm & records it in
white wax disc
If synchrotron is perfect

The wax disc is grained
Copper etched, mounted
or is ready to print

767

Cobalt salt in photo plate
in presence of a salt which
changes color of Crystals
by light & water changing
color " " " salt

Send to Bureau of Standard
for any publication of
Cablety or Micro
Randomness -

Also US Hydrographic
Office Bulletin May
13 1917 Transducers
Oscillations -

Precipitate in pores of
 wood from a lime salt
 Boil fibers in Al_2O_3 solution
 for several hours, quickly
 wash & then in H_2O
 just long enough to precip
 chalk - better try
 Carb Soda - heat - wont
 hurt fibers, wash &
 dry if good marks
 enough for $\frac{1}{2}$ doz blanks

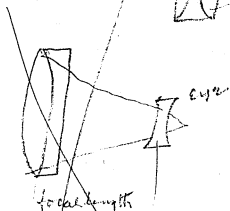
Dry baking blanks
 before varnish put on
 at 200°F -
 1 Hour -

Dry - excess Sulfate Ni in
 Acce bath, little Tin -

Dry 2 moving plate
 lenses



H-Exp. press

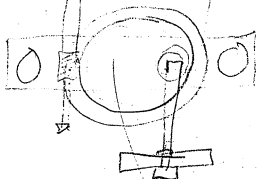


Short focal length, large
 eye, low power eye
 lenses are conditions for
 bright image -

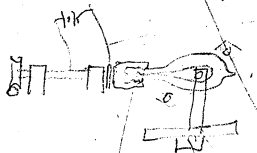
Put saw wood fibers in the
2 blade shaver, treat with some
Sulphur Soda & borax to clean
& see if can get it finer -

Dry twining Ammono Gase
into Sulphate salt then
add HCl ~~etc~~ + Turbidity ok

Lulu Make -



Melograph to use glass of
thin material etc,



15

Print 1 Round / Rev 6/4
" " 8 1/4
" " 8 1/2

Notes
Scratch 9 1/2

4 Seifert
silica
1/2
1/2
1/2

Get cellulose Co Co
load cellulose up
with heavy clay
Silica powder or
something not
all washed by acid
stop cellulose process

Neutralize Alucado
liquid to Alucado
Covered over with
Kerosene 280° BP or higher
Siphon off - to shop
absorption only from
air -

+ Crystalloids
Colloids - Prussian Blue
Indigo sol. Ferric oxide

Crystalloids - Fuchsin, Chrome
Chl Ferric chloride, Saccharose
Ruffinose

Rem suspension Clay Ultramarine
(Wheat starch)

Rem Mastic in alcohol
Dissolved into Cu Sal
or also other things dissolved
in alcohol
Stannic acid non Red

Res Molybdic acid - Molybdic acid

Resorbable Gelatin not
Coagulated by Electrolysis
glycogen

1. Dextrin some Discoloration Resorbable
2. Tungstic acid Resorbable
Comp red Resorb.

Arzene sulfides

Splice from Silicates in ac
acid not used by Analysis
Piles not necessary
Arsenic do not Coagulate

~~Murooxy K precipitate Colloidal
Cu ferrocyanide Colloid~~

~~Tannic acid~~

~~Titanic acid~~

~~Tungstic acid from uric acid
Colloid not affected by
anything -~~

~~Colloidal Cu ferrocyanide
many Colloidal ferrocyanide
nickels~~

~~Gamma oxide~~

~~Gamma oxide (Bp)~~

~~Fluorescein, Uranine~~

~~Fluorescent dye strips of variety~~

Indulin Violet black
Anilin Blue a dilute solⁿ
of Scarlet in alcohol
then poured in 6 pts water
is precipitated, which is not
~~precipitated~~ but is also the precip
gives brownish mass &
shows deep particles in water

These dyes not col in
CuSO₄ sol or water, dissolve
in alcohol & precip by
pouring into the Cu Electrolyte

Dyes the particles in small tubes
seen in little tubes
of brownish color Nyllyn One
Baranion blue

Benzopurpurin Neutral Red
Capri blue - Ponce red

Acidic Thio sulfate solution
got colloidal solⁿ

~~Test Lamp black for
grit~~

~~Test Lamp black
Samples -~~

~~Instead of grinding
Lamp black Varnish
force it thru a slit
 $\frac{1}{30}$ of 1000 crushed
concomitantly~~

Continue Experiments with
high BP Hydrocarbons
to dissolve off the stuff
that stays particulates
together

Dissolve Bone black
in HCl sea of Carbon
fine + ok

Coll and Nitric acid

precipitated MnO₂

" " Magnetic Oxide

Carbonite in action

Nitric on Pyrene

Asphalt with a solvent

Sol in Alcohol -
Don't melt -

precipitated Ni₂O₃
also from igniting
Nitrate -

~~Just found in E. a (100
solution of body of
twist the strong water one
and a second) as far as
possible of them lighter +
there -~~

~~the same in soap
turn a hole in plate,
in the effect of soap
while still in water~~

~~To prevent decrease
prevent one being back
surface~~

See if I have ~~collected~~
~~from England~~ ~~common~~

Partial sending of halogens
by telephone in station
process -

Malania or Malasia &
Umic acid

Scratch = Caraxes

- 1 = Lampblack grit
- 2 " Clots making
dent possible or unhome possibly
Condense to water not penetrating parts
- 3 Celluloid affected by acid
Especially ZnO in it
- 4 Celluloid not cooled enough
before removing from press
pulls up by adhesion to matrix
surface =
- 5 Fibres after printing see record
gradually return to original
shape after compression changing
Condensate with it
- 6 Bad grafting either spots must
hand over no electrically + make
spongy place also non condensing
microscopic spots in grafts.
+ grass, dirt etc.
- 7 = Low ~~working~~ noise in Wax
see card

8 Microscopic pull outs in records making mould dirty

9 - Sand + dust gets on moulds

10 Sand + dust gets on Varnish

11 = Cooks up on initial heating
(13) Varnish - bubbles which don't flow but spread (12) hollow

12 Dust, grit, on wipe rag

13. Moving blank over mould with grit in Varnish

14 Copper crystalline hazy spongy in spots this forced into relief by the great pressure next many times applied

15 In initial heating of record blank before left forced against second blank

16 SD fits on edge better, as blanks concave

17 Mould holders not perfectly cleaned

18 Grit in the Chalk hurts arch when deforming blank

19 Grit + the shellac

20 Grit in Condensite resin

21 = Hard Microscopic particles of Condensite remaining from filler - over condensed in duplicate

22 = Grit gets in Varnish in making it,

23. Get in Sandarac

24 = Zinc metallic & also
oxide in Phosphoroluminum
but some will be none

25. blank material gets any
Varnish brush compared
to Varnish & then back on
next blank.

Test the Varnish (see + see print)

Sub-section rocky mould
Expts 11/26/16 -

1 = Varnish a Celluloid with
a regular ~~blank~~ Varnish -
"coke & print"

2 = Paint over a reg blank
with boiled linseed oil, dilla
Chinese wood oil, dry to
oxidize, graphite & then print

3 = Paint over a Celluloid blank
with linseed & Chinese wood oil
dry to oxidize in oven, graphite then

4 = Get hard coal tar pitch
paint over with linseed &
Chinese wood oil oxidize &
graphite = also pitch at first
graphite & print just at
softening temp

5 = Use some veg varnish
put in little pot with
knitter pins which will
keep it all very fine -
Paint very slowly make
veg & print.

6 = Try quick drying Japan
also P-13 petroleum varnish
veg & print.

7 Mix veg varnish with
Lampblack using China
clay - Kisselgum & Silica
from Ciba, mix var in little
mixer with leather pads or
double paddles, make
several trials more or less
solid & alcohol -
Print blank & test & print

8 = Disperse some Vicor
blank - determine solution
& also separate fillers &
note what fillers are

9 = Put 2 Vic 10" record
together & print.

10 = Put more pressure on
collar to fill & less
heat to stop rollers
also print at very low heat,
another.

11 = Wipe celluloid screen
black ink before printing
with moist rag to
deelectrify & remove
fibre & dirt then print
just ink gradually before print
try Chauvin damp

12 = For dipping celluloid
use 10 g 25% Amyl acetate
in the acetone to prevent
water condensation.

13 = Make a nice ~~extremely~~
weather resistant
put in Kieselguhr, Silica
China clay & perhaps
neg. resin - mix in sand or
double boiler mixer
Varnish alcohol, fill in till
get granular feel & slight
viscosity & work with
brush

14 = If Reg Van with clay
etc is not paint the blank
used for holding celluloid
with it. Bake & repaint

15 = Find what became of
the 100 lbs Meinjak

16 = Test back on lac from
Peabody

17 = Mix Kieselguhr, silica
china clay, fillers (earth)
with kneaded or well mixed
dry to mold - then make
a blank "rod" about 2"
second

18 = ditto as 17 but use
condensate, but use
2" second

19 = sec. Meinjak design
12" steam plate filler
press + chipping mixer
big enough for Benzidine

20 = Washes C₁₂H₂₂O₄
- disc a bit of C₁₂H₂₂O₄
C₁₂H₂₂O₄ and add filler
Knead hot & press to
blank for sub-machine

21 = get copy of Pat
1.197.316 ~~TS Wernagel~~
Sept 5 -
~~flexible stencils etc~~

22 = Hoffman Make 3
sub-machine to handle of
dry blank material

23 Make some ~~var~~ waste
fine graphite

good -

Wool Navy blue B ~~Greenhead~~

Patent blue

Bismarck ~~B~~ Brown T.I.
Heller & Meng

Fuchsin

Sulfate Aluminum
Pearl Soap
Starch knead to jelly precipitate
Aluminum sulfate
Carb. Magnesia Magnesia Alba
" Strontia also manganese
Calcium Zinc Carb
Oxide Ca
Mg
Zinc Ox
Phosphate aluminum

Hydrogen sulfate, not finished

White lead

Antimony Oxalate

Aluminum Nitrate bronze powder

Ba Carb - Guiton petroleum

Ba Phosphate

Ca Borate - King light powder

Milk lime

Ca Phosphate

Copper carbonate

Ammonium chloride peroxide

Chromic oxide

Culcy

Cu Oxalate

Cu Oxalate

Ca Phosphate

flour

Carbamide mixed precipitate

glass fiber

Resinates mixture of

Oxalate Mg

Silver Mg

Borate Mg

Mn Ferricyanide

Cu

non Mettable Antine dyes

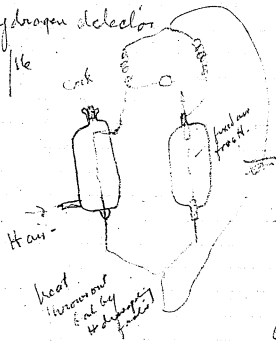
graphite (fine)

Celluloid Drops with
china clay or Smith black
brushed on blank

ground fine silk asbestos
stone used like sand to
get long fibers but very fine

Hydrogen detector

11/27/16



(73)

Dia Vermale Geller
Calypt. Sulphurea nequebec
Lamenter
Chromate of Potassium
" of Lead

peaks to Davidson about
preparing dets in var blank

Experiment with ... of some
of our blank papers to
see how fine wood pulp is
then dissolve sect ...
+ see further, use ...

Diamond Clearance 14 21
42 faces Cubic



~~Hydroxide Colloid Carries a neg
charge & attracts deposits on
Anode which Chromium
Chromium hydroxide in Methylene blue
Dumore Brown Haemoglobin
go to Neg pole - Janus Cathode which
go to Pos pole when in lead sol~~

Second record book
Numbers on Expts.

with Rosen -
E 590 - 7-30-13
590B 8-5-13
591 8-8-13
592 8-8-13
594 - 8-5-13
595 8-11-13
596 - 8-11-13

10% w/v, 5% w 81 grams
This is 11% of the 81 grams -
Thus -

65 w/v form	5% w/v	81 grams
2	1.62	
3	24.3	
4	32.4	
5	40.5	
6	48.6	
7	56.7	
8	64.8	Equal

Investigate -

Dry sulphates of Chromium
Brom. Iron Zinc Silver Mo
Co, Cd, Al Mg Ca &
in little cells as much as I
will stand

Write to the Commission of
Agriculture after getting word
of the President's Invention &
Call his attention to the paper
present

Hydrogen Indicators

Closed chamber + porous
diag. put the substance in
in under 3 inches vacuum
& note time that takes for
accession to Equilibrium -
Use porcelain ground
largely, then different sizes, (7)

Also time of low pressure
when air containing hydrogen
passes out thru Young
Capillary glass tube.

Pass gas thru a liquid
from Capillary tubes.
Note size of bubbles at
different pressures
on constant pressure.

pass air into of obs.
with K₂H₂O₂ solution
anhyd. - open anhyd.
& absorb O₂ - N₂ H₂
left should show
on large excess H₂.

Chamber, strip Palladium
Electrically heated tubes

Closing off H₂, let in air
& close H₂ should be
absorbed in index water.
Column show -

Nitride forming substance
Capable of Elongating
heating in closeable
chamber pass in air
heat & absorb N after
air has passed out
K₂H₂O₂, bal. will be H₂.

Receipts with side arm
containing Antimony & Illuminated
Close Recyclable &
H₂ (or N₂) - dials
N₂ acting on moist paper
Changes color

Close Chamber, pass in
air of boat & Extra H tell
reads. Exposed point
Amount added is measure
of safety - or vice, Current
& Zinc Anode inside
Chamber of spark plug
Chamber should -
Read by ammeter amount H.

Anderson battery why
of 1. for 1 tube & 11 R plbs

Paint to discs with
Lined oil - ditto
Chemical wood oil
let dry 24 hours
then load Reg Var
see new section

also Aluminum
See how get available Magnesium
Reg Var & load it to correct
Var to use reg. beyond would
as cond. may spark Reg. would

Load Reg Var with Paraphenylene
to limit 1 Var to 6 with & 6 without
Keep black ridges
ditto Paraphenylene -

Reg Var loaded with no metal
highly braced & inserted in
oil, chemical, or Chem wood
oil loaded thick -
Var 6 -

See how fine Silver film
gold film is got by reduction
with with pure Zinc. Try +
Oxydize a coat of silver
with it's coat of aluminum
An Chl. pres. to metal by forming sulfate
or other acid (8)

Naval - Mology sound
waves 250,000 or
more per second
through very high speed
shutter breaking up
into dots dashes
reduce speed of
shutter to bring it
down to 4000 sec
to read letters

Bulch 12 lbs Resin
1/2 lb MgO + Cook till
thick -

Bulch Resin pour
out + boil till
thick -

Neon

With pressure sort out a beam
which is only photographic & only the most
intense part of light. This should give
up powerful very low luminosity to
a distant ship & get reflected back
the most power ray for photographic
purposes perhaps. with powerful
are with very intense light of
very low luminosity the whole
~~light~~ horizon be illuminated
standing in day - as night come
on + this apparently diffused low
vibrant illumination, occasional waves
scarcely is noticed by the enemy
yet photos comes in taken of
their position

Either pressure or absorbing
Bells can be used to cut off all
waves not photographic

Get some Reg Clay - Coat &
pencil & try in var
5% 3%

Make Resin records
but Shale seems of
Shells powder foral
than at finish before
lead on - prevent
bleeding

Smooth glass clots on
one record & print it on
test mould

Grind some reg var
on new disk machine
winds by disk

Grind shells impalpable separate
by floating in water & drying

Mix with 4+3 dry & make a
blank -

Also dusts has in Carl soda
also Natl, dilute & pencil by
Hbl in Cold Sol - filter &
dry natural - Mix in hot
molar with chalk & wood
if promising make enough
for a blank - also do in EtOH
pencil with Cold water - mix much
with feds & chalk

Try Resin clay in alcohol
pencil in water, Cold - there
was much after filtering to
mix with dry procedure chalk
& dry

All the above if get
records test with water

Have a reg Reg blank
printed on test mould see if OK

Get a diamond point (req)
with a fine ground across it
sharp.



to run over records + scrape
off the points.

Suggestion - after grafting
Run a req 5 or 6 second over
graffited celluloid in way
- 25% more weight on
at $\frac{1}{2}$ the usual speed and
not to hurt side of hills -
then plate after cleaning off -

Do we still use para in
shellac going into blank
if not why did we drop it,

Make simple blank
~~of~~ ball check with
same shellac - Var + print
Smith 4% black dust
surface -

Paint a blank with palm
oleo, dry then var

ditto with Rubles Cement
then dry + var req

ditto linseed,

Varnish req Condensate Var
a celluloid + print it
see how smooth -

Dec of Marshall's Copal takes
up NegO -

Inquire if the Temperature wood
distillers make a Resin of
so get some

Dimmedle / makes a
break in the ring let out
out -

Make Varnish with
Asphaltum instead
Ghemal -
See if Asphaltum soluble
in alcohol or oil etc.

Paint deep black with
50 phenal
8 6/4 -
1/2 Paris - Dry

These Varnish Reg Var
print on test

Take deep black soft Condensate
powder 4 wood 3 chalk over
bottom deep mould in -
then soft Condensate powder
over top - press -
4 print excellent Varnish

also use Condensate base
4 chalk only ground
fine - ditto conc. solution
ditto China Clay
~~not necessary~~
possibly may not need
grounding

Try Resinate lead black
Varnish 4 try print out
on glass disk - over glass
a blank
Try Tungstate of metals,
lead humate

Double Var with Resinite
Lead - ~~do one coat right~~
after the other

Make Resinite lead var on the
New steel print mill -

Try Lead oxide only.
Litho in ~~the~~ Resin
also lead by ~~the~~ do

Ground Resinite Lead
in alcohol - dry sea of
powdery

Try aluminum bronze
Lead and why Resinite
Lead var makes black
Surface var a piece of
glass

Lead and ~~Varn~~ var
was ~~negro~~ in

Put some Res lead var on
small $1\frac{1}{4}$ " transfer plate
to study it, Condens

Stick a Celluloid disc
in a blank 4 print on
heat in oil - 2 of them
see the blank & varnished
with ~~lead~~ oil on window
sill -

Take one of the best
wood records -
Varnish the smooth
side & print again
use Resinite Lead var

2 Oils, distilled the
Toluene into the 3
Toluene

find out % of leaf the 500
made with 1/2 doz

Ask Hoffman if he saw
grand block block
to chalk 1 hop in small
quantity

Mudd Run up a chamber
to blow at separate
wood fibre Smith attend
ordinary table for small
gentle draft (see)



Clath chamber at end

Smith ground asbestos

Press a blank die of
China clay -

ditto damp -

ditto damp and by
three levels of water &
dried & removed but not
enough to shatter & much
in oblong

ditto with hydroxide Alum

Ask Dr. ... if he did
once make a ~~Copied~~ that
was brittle & glassy

Test & inspect the 3 sets
Records with microscope
6/4

See if Resinate lead
Daphn phenol ^{absorption}
or para in alcohol

See about Stone Bar
Vendell Mills of Can
not 2nd hand or if
they are size made

Get some ~~Merck~~ paper
tablet

Resin $\frac{1}{8}$ " dia bullet to equal a 3/8
mounting

Make 1 or 2 blanks -

7 Resin film 1 lac - also
Fullers earth

Find out ~~if~~ Fullers earth.

Get some of fine sheet
Arboret, ~~leaf~~ with fine paper
Smith ground -

Smith Ground Cotton flock

Maxwell. Adol. - is convinced that
the New Edison supercedes exactly
the voice of the range, with every phonetic
Catalogue, so there is no difference in
CS1

quality from the original on the
specification and will refund the
money if these statements are not
found correct. This is not ~~possible~~
~~not~~ by any talking. ~~Useless~~
no sale

Lead to school 9/19/17

10 lbs powdered Millstone
10 lbs from ~~Libra~~ ~~to~~ ~~the~~ ~~lab~~
10 lbs French Tals
10 lbs ~~shifting~~
10 lbs ~~from~~ ~~the~~ ~~oxide~~
one ~~of~~ ~~the~~ ~~Menhaden~~ ~~Fish~~ ~~Oil~~

Lee has Hall
getting on well shows
found very few

Lee has about going down
to see the way about the valve
also if we can put up
temporary building until
we make good + if everything
OK + no mistake has been
made we can get up
permanent buildings
at Leverage, W's coast
except, now

The glass had Copper
made by ~~Dimond~~
in Philadelphia, Pa.

10 July 55 mtg -

100 + 1 gram - ~~latter~~
hardest East Britant

10 July good -

Atropinna reaches Eye
Accordingly, sensitive to
light, but no accommodation

Normal eye would be ok
in illumination at distance

Open to read indefinitely
where no tendency to
Glaucoma, those would
30 not affected on
strand it.

Should not be used in
any eye until tension
was taken before hand
Continued use sometimes leads
to inflammation of conjunctiva.

Suggests use of Homatropin
Effects don't last as long
Effects can be counteracted
by 1/2% Eserine, then rest

as a Myotic

Homatropin 4 corneal disc
1/50 Each would be diluted as
washed,

Detention requires 1 hour
for maximum effect.

Accommodation can be
secured in few hours
by using Eserine

Reft & Reese MD
50 W 82nd St NY

Jay 2 1/2
5 1/2 WET + 1/2 in

little double shimmer pat
see if it will have fibers
all appear mixed lake and
muscle gills & dry

Find solvent for Manjak
see what it is, also if
fibre can be used also
Chalk - if its acid + lime
to use also if Resin +
Lac be mixed

Take the good varnishes we
have + add little more
alcohol + filter in fine
filter thru 2 cloths no
paper + see how much of
any residue.

Make several hydroxides
Zinc Lead with copper
Nickel Lime filter wash
on filter + then wash
out water with alcohol
+ mix wet with 75 Varn
+ test,

When Fred got the Varnishes
get several Carats of Ammonia +
best Diamond Engraving Machine

Is Dimethyl ether Phthalic
acid antipyrin by Resorcin
peroxylic another phenols -

For Varnishes try some of
the Dibbas Organics +
these recently obtained
high MP. or insol alcohol

Var - try if Manjak sol. also
try asphalt made very fine

Listen to Xiners several
seconds.

Try Benzoyl Salicylate Lead
Oxalate Lead, Oxalate Lead
Citrate also Tartrate Lead
succinate, roller read organic
Salts for Varnishes

Absorption of arc light in atmosphere is 10% per Kilometer -

approximate quantity of Plasma Ultra V in a Peak searching lit is 23%

Side light vision - confused as to detail but for more sensitive -



Make pair spectacles
x test +

Manipulate collector
prints & photography
in Brown Laboratory
with instrument set.

Any disturbance of the internal vibration of a molecule cause waves to be sent out into space by the ether - Heating sends heat waves -

Should think an electric stress should send X waves to space. Magnetizing, other waves still - Chemical action still there. What is wanted are instruments to detect such waves & bring them to the notice of our senses -

In addition to the ether of space there may be a far more attenuated gas than is doing any more atmosphere mixed with our gas. Extending millions of miles outward giving flat 15 lbs to square inch

pressure but tons per square
foot ^{but nothing to do with matter}
that while not taking any
part in the transmission of
disturbances in barometeric
pressure of our gas to give
sound would if the waves
were sudden frequent enough
travel on this gas pressure
& not on the general states
of space. The use of this
high frequency waves of enormous
wavelength & frequency
which would come from
internal molecular pressure.

Perhaps the agitation of the
inter vibration not of molecules
but between aggregates of
molecules or disturbance
of adhesion in metals -
like magnetic stress.

Think vibration of
shell of a big Dreadnought
hulls enough sounds to
air that with the 28 ft
funnel & a diaphragm as
sensitive as Weston
sensitive recorder with
Cotton ball cup in
center dia - balls of wax etc
or small cup / cardboard
could detect it 5 miles
away from a stopped
ship or a small
torpedo or submarine
perfectly still

Keened to know a machine
here a long ago records
harder for me than
going west

Desluz 3rd boil in HCl. use
Tin + get as light as can then
Neutralize close to Neutral
constantly stirring but keep
slightly acid, Use NaOH,
also met. carbide, with conc

also, slowly with lime &
furnish with NaOH,
slowly MgO & furnish with
NaOH
Also try

Burn 1st + 2nd boil acc Zinc

Try boiling Hydrochloric
in Ebony Sulfent - also base
to get rid of Zinc - get all
Solvents together -

Hoffman

Get the Barrel of Roxin
& make it all up into 6 blocks
same as A 12, & Run them on
a special report for % & K -

Get 2 stones 1/2 Carat
& 2 1/4 Carat
1 of 1 Carat To Crack -



Roller for
over the pulp block found above
in cells or other place.

Hoffman Make up 1 block
to chalk 1/2 Blellac -

also 1 block to chalk +
More toward A 12 find
out what it is - & because

Tell (Wardman) not to mix
3rd coil or even 2nd coil with
1st coil - He said me up some of
dried base right away

Boil the Alkaline Sol with
Carbonate Soda. This should
precipitate the ZnO_2 out
of alkaline Sol.

Pass Sulphuric acid
into alkaline Sol. This
throws down Zinc

Try Experiment with 3 coil
boil in water containing
Chl. Ammonium. This should
form double salt with
the Zinc.

Mix Zinc Ox ^{200x} fume with
ZnCl 3 pt to 50 parts of
ZnCl Spec 9 1.5 @ 16
+ some to yield, this is printed after quick
pump working would

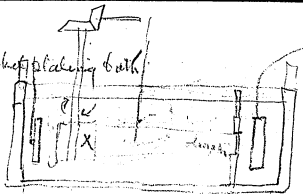
Boil (3 coil base) for
Chloride Ammonium to form
Double Salt of Zn + NH.
Letter off - ~~add of Ammonia~~
Zinc -

ZnCl combine with ZnO to
form Zn oxide metal hence
if we neutralize alkaline
sol we should avoid any
excess of HCl otherwise
Oxide formed

Try dissolving original
liquid in HCl if necessary
decolor by this then wrap
down & chill out
do it cold & also hot.

found almost repeats light
bodies, ~~was~~ as in a ribboned
at most repeats a light disc.
think 75 to 100 in sea give
by results

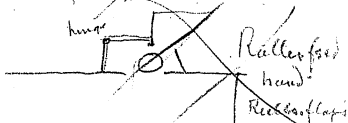
~~Wicket plating bath~~



~~→ 18" ← Roller~~

~~X → to keep against rotating~~

~~Hoffman Maple Ragon blankie
with Sesami, 3-4 + 1 Rosin
Fulchal to 1/2 oz
+ Varnish with Pores filled -
Brosplish, etc.~~



~~See if Smith sheet got Cellulose
thick enough to Roll out in
sheet~~

~~China Clay next.~~

~~Send Maple Steward out over
to Brown for grinding -~~

~~Mucicase~~

~~Isocadon~~

~~Bancraft.~~

~~1/2 lb. Cellulose with Pittsburgh
glass, in bag for himself -~~

If the minimal vibration of a molecule is the source of the vibrations of heat and light then probably the lowest vibrations per second would be 250 Million Million a second being the vibration at ordinary temp.

Now if we want to get slower a very gradual new lot of vibrations we must heat Double Salts or complicated molecules. This would give light heat wave vibrations ~~and the~~ due to the molecules of the salts forming the double salt. It could be superimposed on this and be very much lower frequency. (1) These due to the Double salt aggregate finally we may use Liquid Crystals Colloids

and get waves slower yet + Solid matter which might as well give waves not more than 50 million a second. The trick would be to develop an instrument responsive which would lower them to one of our 5 senses.

If Cancer is due to a predatory organism then it could be removed by pulling out the Cancer a pathogen or food more palatable to the organism that human flesh. The organism would be likely to leave its host where it is constantly fought by the protective bodies + this healing would take place.

Brushear to make a
lense for reflecting
Spy glass,

Dissolve #3 base in Water
& NH₄Cl when dissolved
add Bone & Leech Coal
& then filter if better color
red color & let it aggrain -

Listen to Hertz records -

Dissolve #3 coal in Alcohol
then boil with ~~some~~ bone
black & filter then bone
black again see if color
of it white,

after getting Zinc out of
#3 Coal base treat with
some very weak acids -
also try form double salts
to get rid of the Argo acid -

try picric acid & other weak
organic acids to combine
instead of HCl.

Boric, Phosphoric, Carbonic acids
~~Hydrochloric~~,



try after getting zinc
out, by putting in
alkali with more Zinc
then reduce - then add the NH₄Cl
acid then formal to make
Hydrochloric acid instead of Oxidation

If the red base is an Argo
acid try Oxide Magnesia
to decompose it, the Resin is
an acid.

If Resin is acid & combined with
ammonia base then if just
brought to alkalinity - the
acid will combine with
NaCl then boil bone & Leech
(115)

this will take the Resinate out
& leave pure base

100cc of alkaline bleach
should give 27 lbs base
per gram get rid of it
if 10-gms yield would
be 270 lbs per batch.

Scum up the lead Res
plant,

If Resin bleaches work OK
make 1 batch of 800 &
Reculture to get 1/2 of OK
& repeat, 4-3-4?

See if pure alcohol
set - alcohol & if it
Colors - also alcohol
try wood al - & pure alcohol

Crystallize some Pars
thamnidium -

Try heat. & acids base
to form double salts.
Crystallize & then decompose
by heat to form the product
see the next page

Make up enough Pb Resinate
to make 10000 flakes &
use these flakes on new
moulds to see if they react
+ -

Let alcohol cause the degradation
in very high Vac - remove
piece of Zinc -
also try heat & CO₂ in
partial Vac

See if Ammonoite shell or bone
Zinc phenol =

Prep. zinc Azo in Porony
Carb Soda a better family
with Kalcine Sol. =
So our dent affect (then)
precip in HCl =

Try flour in Benzol to
take grease out, then dry

Huffman 1/2 of a mix of
1/2 Resin, Meag + 1/2 Resin
to get high R.P. point +

Test 1380 Radon blank for
Cold & for 1/2 heat =

Ask Holland how ~~to~~ prep.

" Warner " ~~see~~ Photo ~~fig~~

See if Azo can be reduced in
Cold by a mix of Graphite
& Zinc dust or brown iron
dust local action
Mechanical Zinc dust

Varnish Cellulose with
Resin lead Condensate
Var. containing Acetone &
Ampl acetate, 8% Resin =

Mambers = What being
done about Sept
managers + bookkeeping
for the floors in works

~~See about~~ Mambers about
Wilmington =

Ammonoite Salts Try Chloride
of K, Pb Sn Mg Mn Na Sr Kali Zn Cu
Al, NH Alum, Fe, Ni Co, also some
Bromine, & try Organic acids LVO No
ferrous - Cyanides =

Mineral Chloride base
activity in benzene room

Worm Resistor -
50 million ohms
Hot cathode tubes - and Elec
Rev. 19-771 (1976)

Color photos of end tips
which are coffee beans
with good sized particles
Then try the 3rd one
See how they are
Use the same as before

Chloride 2000
Daily 1000
Mendocraft 2500

Huffman Make blanks
3 wood 4 chalk
7 Resin 7/8 wood

ditto 8 - Resin -

Test the 125° Fahr
heated 1350 Records
is also the one in the
2nd chest, removed a
little 120

Paint a blank with
Rubber dope but not
enough to close pores
then vacuum

Make some of all ~~wood~~
wood fibers ground
47% from 180, 7 fibers 120

Some all fibres with glue

Wet new lake ~~with~~ record
an ~~each~~ way to at $\frac{1}{2}$ or $\frac{1}{4}$ speed

Note length ~~of~~ waves & number
per second in $\frac{1}{4}$ " June 2 - 1903 sec

Wet all Mount the 27
Diamonds & loose beads
put them thru to get spec

Wet Dec of ore have any
BS in lot send
get a job 4 - Make some
discs - 4-3-1

Try Resin & Castor oil
about consistency of fly
paper 4-3-1

Try ~~Wet~~ Reverse

Try flour paste with con
oil bag paper - ~~and~~ it,

Try varnish bath, white
Celluloid with nitro
Coffin then put in Duon
bath - smooth -

Make wax test on celluloid
Resorcin - with Reg. speaker

Varnish Reg blank with
nitro & dry - print
on 1751 mould -

Have set of processes &
time allowed on test mould
to get best schedule for
- scratch -

~~Wet~~ ~~Wet~~ ~~Wet~~ 2 -
brushed blanks

Walter Miller - Make 2
Uncoated blocks 1 to be
run in one way & turned down
The other to be plated with
Sycamore hard all way
then to be run in way 175
times if necessary to
compare -

Make Experiment use sycamore
schedule bring to final
pressure 20 seconds -
then relieve back to 150 lbs -
for 11 min 40 sec to cure
If this OK try at 100 lbs
to cure. The fibre will
then be under very light
pressure when cured &
will not spring back

It may be veneer is too
thin & record is flexible at
the small area of contact
of Diamond & it gives in
playing but springs back
& leaves no trace under
Micro -

Soak Varnish without
Lampbrush into surface
as much as it will take
Dry - then Varnish with
Lampbrush & make dry Varn
This will make a stiff
Crust & prevent the
undulating -

Make one strip -
~~strip~~

Have more make a syc
strip with 2 oz unslaw
3 oz of less Scratch to
press above theory

Buy an alumin. then
pat it on another dye or
~~get~~ some colloids & spray -
dry & they reproduce from
the glass / live

Try & make an all black
blank 7 sticks to 1 lac.

Note if Rubber or film
drape keeps vacuum not
from penetrating blank -

Try Pb resinate ^{var} on top of
Reg var without lampblack -
this vacuum will go in deep
& after dry but not baked
the Pb resinate var will stick
& the 1st var stiffen crust
of blank

Make Reg blank, dipped over
bottom of leg. Chalk with
shellac & it - see if stick
to wood -
ng and band

Make blanks with shellac
containing different % of
~~water~~ salt & so surface
blank will not be so
hard. Try some shellac
cut in alk to get right
percent.

Also reg clay painted over
or (low) over with
cellulose glue see if
this helps process

Get the formaldehyde
silvering formula
then substitute some Na₂SO₄
or silver this in the sol
To Silver over - often don't let dry
that last exposure

Use some wood blocks see if I need
blanks with Kieselghur

Make some blanks
with 4 chalk 3 samples
1 wood

delta 3 fibers 2 chalk
2 lump alumina

Make up ^{1/2} gallon
Pb Res varnish. 10 to 17%
4 use this not 5 along
also 15 to 17% varnish

Can't we use like as
ether solvent in each
with is I think a node
Mud gets on celluloid
possibly Eryasphor will
grow thick & R

Why not Yarnish Edge
dip brush -

Have 2 pots one resin -

New Pb Res does not settle
yet no need stir just
fills out fibers

~~Start old set of fibers
out fibers desicc~~

Weller Miller get one
of these hull & scale
1170 thread seconds
He do like about
see if its condenses

Make some blanks with
2 wood + 5. Kieselghur

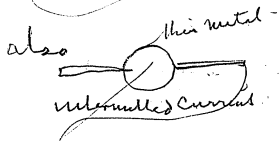
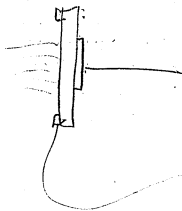
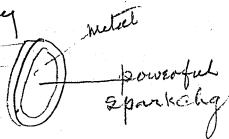
Chalk tetrahydro point
 Osmium tendency to stop
 wear due to conducting
 Carbonaceous - Silicon,
 Tungsten

See if ferrocyanide of
 Copper is decomposed
 in acid solution of

Dunstable they some
 square edged blanks
 with the ring -

How about the 40/1000
 sets & ring

X42 ray



LX42

Get the Vegetable Dyes -
Especially for the
plating experiments

Experiment on Fish oil
with black dyes, Colloid,
for fouling Submarines
torpedoes & Cable
Monat Try the Sulphur
Dyes from Buffalo
& H+Maz oil blacks
also black Colloids -

Berlin blue -
Calcium phosphate
is gelatinous -

Get a new book

Have Warner try

the Mirror on a plate
of glass & also window
at a distance, also
with an arc or nitrogen
lamps at dusk & daylight
see if our photomicrographer
can't do some experiments -

Hurry Diamond plant,

Hurry Resonance lead
~~etc~~ plant,

Oiled waters

Try Crude petroleum -
fuel oil - Coal tar
this - Muddown Resin
oil

Dry machine oil thinned
with a fluorescent oil
insects asphalt in
oil

Dry all oils as cheap as
Methylol -

Dry Naphthalene in oil to
break surface tension -
dry pine need for oil
Bismark Brown

Oil Code -
Dry red oil -

Dec 29/16

Finished ponds arm 1692 } Disc
" " defects 367 }
Amberol ok warm 3153 -

Finished except deccis -
Antikoban - 9327

Finished Spins Disc 8420

Stones crushed & ready for setting
30 000

Boat all kinds on hand
Sand "

There is in addition 1700
gaskets in our stock of
#200 Machine -
also 1200 in the #100

For 1917 150 000 Disc wanted -
43 670 in stock -
106 330 - ponds wanted

Amberol 40 000 wanted
124 80 on hand -
27520 ponds wanted

5370 ponds wanted in
1917 - giving bond quantity
1917 ponds -

6552

Discor some hadest drilled iron & also some of
 the steel is used for making blanks to see
 if we don't get a diamond production
 Diamond Co. etc.

Marwell estimates 1000 10000 10000
 in 1917 135000 Rev. Co.
 50000 A. U. etc.

175000 pounds -
 144 105 in sight from opp page on basis 67000
 per Karat

† predict average for 40 points to Karat

January 3 1917
 Diamond situation

Disc
 In machines at Chicago & Orange 2921
 Finished reproductions in stock 8420
 Finished points in arms 1692
 " defective 367 13033

Amtruda.
 Finished reproductions in stock 9327
 " Arms with points 3153
 12480

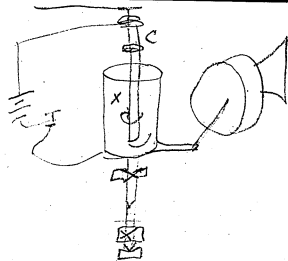
Diamonds in holders - swedged 10000
 " " tapered for grinding 20000
 points ready for holders 30000
 in holders ready for swedging 5000
 65000

Diamonds in Vault
 Consisting of best splinters & various diamonds not
 including sand, 15942 Karats
 Sand 275 "

Ultra Violet light electrodes -
discharge - bag 10x magnifier +
piece blown off.

Shows very most sensitive Bolman's print
plate on a glass support to a camera
whose lenses are of proper material
after exposure for a minute or so.
This should be laid on top of a very
sensitive dry plate & allowed to remain
many hours to transfer all the light to
it then developed.

The micrograph principle silver with plate
& not being slowly or without which a
use of Metron, & proper friction
surface is going to lead to big
results. All great energy changes
in duplications of matter by all kinds of
waves motion take place at surfaces.



Micrograph - C metal
P or M rotator - Cup
pivots. Camera lead to
Exposure -

Liquid on Comp

Why not make a dry plate
consisting of a mix of powders
including not like Paramorphous
base or Hydrochloride & Bromide
of silver -

Boards of Carbon Mossam -
Are with Copper Matrix, cuts fresh
on diamond -

Titanium Carbide also cuts
facets - These 2 are the
only ones that cut diamond

See if can get Board Carbon
Merole, which does good work

Diamond tip cylinder 1 inch long
disc of Iron pocket battery steel
0035 3/4" dia -

Requires 12 Karats of Sides of
Each disc Edge as (varnish) 1/16
with 1/8 of a Iron disc diam. 1.000"


Ask Brown of Conkern etc Co
if he can give me a varnish
that will Conkern hard that after
afterwards by heat.

Varnish Couple blanks
with Phosphor Van Lake
slows a then bring up to
220 Fahr in 4 or 5 hours
& Oil even then present -

Ground some Charcoal 97 thin
180 mesh mix 4 char 3 chalk
I have mounted it -

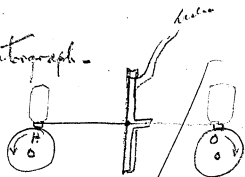
Look up old back see how it
acted before doing them

For cups Perrier's Malleable iron

 1 1/2" = Varnish on shells with
Diamond dust - 1/4" dia

+ Roll in by heavy pressure on a wheel fed
along by a screw-faced wheel only 1/16 or 1/32
do it 2 or 3 times then dismount off shells
+ save 4 Karats

Metrograph -



2 brought forward as alternating

Mr Bullock
London, June
30 Church St.
7250 Cont.

Take the Melles Resonate Lenses by
M.G.D. melted in Room at night
with def. program resin to get
Melting process -

50 lbs Balaah (Exoptal)

Wood 28 $\frac{1}{2}$ lbs

Check 21 $\frac{1}{2}$ lbs

hermes

10 lbs Resin

35 lbs alcohol

all (I presume) to be made
for metallic compounds
to be used in

There 10 Resinoids Mg
is assumed as some value
as $\frac{1}{2}$ lbs late

Faces of record Vars

100 gram Resin 160 16% from PR

6 " phenol

1 para

1 Sordone

7.8 6/4

156 ^{to 200} Denat alt. to get right viscosity

$1\frac{1}{2}$ min Viscosity

5% ground Lumpy to Check

4 Woodfire 3 Check

100 lbs of the 4+3 mix

acquires 14 lbs 5y Shkha

a 50 lbs alcohol

$3\frac{1}{2}$ alcohol to 1 Lec

Resin best 5 alcohol to 1 Resin

probably also better with Lec

61593

Kacumesthaff agreement
July 22 1915

4000 lbs clay per day
Cost 27c (40c per gal) for all
beyond 1 lb for increased
production above 4000 lbs
- 1/4¢ reduction below
27 cents.

2.25.

100
10-

2.25

- 40

2.85.

Eberle

5240
5240
20960
10480
26200
274576

24 27500 +000 (1140)
24000
32000
24000
148000

X

Z

Red
Mills

1140-
9125 goals per Mile

50000
90000
45000

Notebook Series -- Pocket Notebooks
Notebook, PN-16-11-15.2

The dated entries in this pocket notebook cover the period November 1916-February 1917. The book was used by Edison to record ideas about business matters, experiments to be tried, and other tasks to be performed. Some of the items have been crossed out and marked "Ent." Included are notes on chemical experiments, batteries, photochemistry, the sending of photographs by telephone, disc record composition, and the crushing of diamonds used in disc records. Also included are notes on military topics such as trench warfare, ship detection through acoustic range finding, luminous paint for ships, submarine and torpedo detection, and the prevention of saltwater corrosion of guns on military ships. In addition, there are entries regarding consultants and experts whom Edison wanted for war-related work.

The entries at the beginning of the book appear to be transcriptions of entries from PN-16-11-15.1. The last page contains a notation concerning Edison's agreement of July 22, 1915, with H. H. Meno Kammerhof, supervisor of operations at his chemical plants in Silver Lake. Other Edison employees mentioned in the book are William W. Dinwiddie and Sherwood T. (Sam) Moore, principal assistants in the development of disc records; chief engineer Miller Reese Hutchison; and Walter H. Miller, head of the Recording Dept. The pages are unnumbered. Approximately 150 pages have been used.

PN-16-11-15.2

#2998

E-1697

1 Meter 39.37"

1 Centimeter .3937 of inch

2 $\frac{1}{2}$ " to 1 inch

1 Millimeter .039 or $\frac{1}{25}$ of inch

25.4 " 1 inch

Reducing Agent in Aqueous Alcoholic
Ammonium Sulphite - do Na Bisulphite

Chlorides in Alkali at ord temp on
Electrolysis gives Hypochlorite, if
Temp raised gives Chlorate. Possibly
in our battery the Chlorides act
Catalytically + permits oxy Ni -
+ if absolutely free of Chlorides would
not charge - Also this is correct
Explain why Charging hot gives
poor Capacity, only 1/2 Cap at 130°F
Experiments should be made to test
this + also to prevent formation
of Chlorates.

A Resin is formed when Cyanamide
acts on Acetic Aldehyde - Show

Ninaphthyl is a resin made by
action of Peroxide of Mang & Sulphuric
acid on Benzol -
This should Condense with $\frac{1}{4}$

Nitroanilin & formaldehyde Make a
Varnish -

Sheet iron shapes dip in condenser
Vary in Condense -

Make Battery of Cobalt battery so can
Reverse - not both ways -

~~Prep Ni(OH)₂ with just right amount
of NaOH. make 2 small test cells -
then put some more NiOH in NaOH
& boil make 2 test cells & keep on
making 2 test cells each time
boiling in strong NaOH till NiOH is
white in color~~

Prep Ni(OH)₂ with just right amount
NaOH. make 2 small test cells -
then put some more NiOH in NaOH
& boil make 2 test cells & keep on
making 2 test cells each time
boiling in strong NaOH till NiOH is
white in color

Find most rapid catalytic agent
for decomposing H₂O₂ so can
put in battery -

Dehydrate Ni(OH)₂ by boiling in
NaOH strong - after this find a
solution or condition for hydrating
if this can be found think
it will regenerate cells -

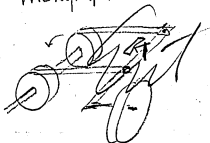
Find out what Brinnith locally
does in NiOH to make it so
high Cap

Experiment to find a Soda
Concn like the Patanki's which
Combs to increase desirable
Capacity to displace Zinc -

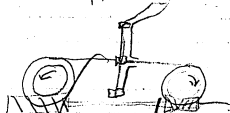
Also a substitute for Copper plate
in Leclanche, higher Emf & Cheaper

Process Bi + Ni, boil to Crystals
 the Bi - Crust screen add Bi
 Crystals then use of Bi in last call
 OK

Motograph



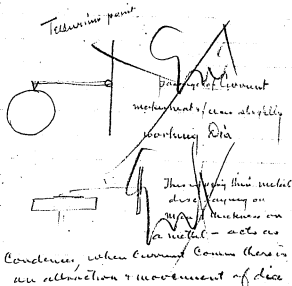
balance friction away from Dia



Another way



For points in Motograph - ~~just~~
 German-Indian, Indium - also
 Carborundum



Leland - see if ferrite of a metal can
 be found used in NaOH, let's
 Phosphates, Manganate,

Morgan battery. Precip Ni & Zn hydroxide
together, no excess NaOH. Dry &
precipitate with excess NaOH to get
Zinc out & leave porous metal
- ditto Al_2O_3 - dead.

It may be Pb's only function this way
to make porous & not get high results.

See how Zinc plates out of a
K Sulfate Zn Sol.

In Epimoly to get a double Zinc salt
for Island. Dry Organic materials
as well as inorganic.

Dry a double sulphate of Iron & Zinc
roast to red, then boil out ZnO by
NaOH & reduce by H₂. There will be
some ZnO left but this will
prevent formation of a dense
anode gas.

Make a series of iron sulfides
mixed with Ba Sr Ca etc salts
ignite to ferric reduce in H₂, this
finely divides iron & prevents Hg
from making it dense.

Paint Vialin strings with
Nitrocellulose & Rinse in string
wax stain it - Paint the bow
back -
also soak string or bow in
Resinate Soda & precip room by
acid -
Treat strings or bow with
formaldehyde.

Wai = bunch - ~~found below copper~~
level filled with ~~refined~~ ~~lithium~~ ~~also~~
2 fused Mg & ~~plaster~~ ~~is~~
Irreversible for ~~being~~ ~~used~~ /
also difference in Vol of air & ground
wari -

In Alkaline zinc reductions like
Hydrogen-benzene temp should be
high enough to dissolve ZnO -

Have Mitchell by a small test cell
that has been run for some time &
has fixed capacity. Charge -
put in 10% of bulk of H_2O_2 & let it
stand for 10 hours then discharge
Have a Dup without H_2O_2

Elavide - Pack a lot of CuO plate
in Buckmans smallest annealing
boxes - pass cold H then bring up to
red & pass a very little H then say
enough to reduce 2% of the Copper
Pack so H must pass thru all plates
This to get rid of Zinc

Polished Copper plate: one slightly
oxidized in flame - put in NaCl sol
front part expands to light back plate
shades, gives sufficient
Unoxidized plate also work one
Exposed to light gradually turn red
then purple - ~~from~~ ~~other~~ ~~plates~~
Coated unusual ~~0.2~~ ~~of~~ ~~the~~ ~~100~~ ~~in~~ ~~the~~
paint. Even defused sunlight work
Volt 0.1 Current 0.2 been
obtained from cell containing 2
plates 6" sq - 1 oz; other bright
NY also 500 June 14 1916 12
page TW Case

Diazo compounds are very sensitive to light, which induces photochemical decomposition, even when the action of heat, water or acids is slight. Some Diazo salts stable at 0°

decompose at 10 Cent. This should give good photo for radiant heat in presence of something that is colored for a color with the Diazo decomposition products. See Chem Trans 1907 91-35, Soc Chem Ind 1890 9-1001 also for other exceptional decompositions of Diazo Compounds. Ber 1874-7-1061 1884-17-274 1896-69-1327

1902-35-89

Chem Soc Trans 1896-69-1327

1902-81-77- 1905-87-5

1906-89-19.

Diazo salts are highly endothermic & explosive.

Stannous Formate - good reducing agent
Formic Acid, Copper powder "
Hypophosphorous Acid "

Dictionary of Applied Chem

Vol 3 p 220

Diazotype Photography no. 49

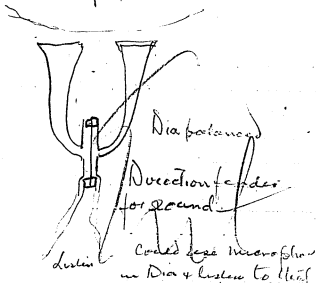
Prinsep's - Diazo Process Photography
by Cross & Bevan

Can get any color by using different developers - no silver salts

Paraphenylenediamine hydrochloride should be very sensitive as Bain used in paper

Worked waves are reflected by metals pass thru reflectors probably can reject waves back from by backward light.

Homatrophins (Belladonna)
 (Could be used in Egypt)
 range from 1000 to 10000
 Visibility - also for other channels
 for submarines + Aviators
 all in daylight -



Dia Diaphm - doz magnet
 Expansion + contraction
 of Cores by magnetism
 give vibrations to Dia

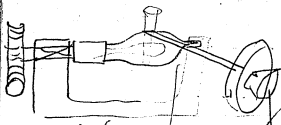
This sends waves into space
 use powerful make + break or
 jump apart + if too sluggish
 use electrostatic attraction
 want 200,000 per second

Send out photographic rays
 in all directions just at edges
 of blue flash photograph
 slower by yellow light
 whole spectrum will depend
 up powerful beam sent out
 150 KW power (E) constant
 This is the way

Send out sound waves to say 256
 + get Echo by using microphone +
 tuned resonator

for positioning big gun use phonograph
 + air waves + also Earth waves
 a Piano board against wall 10
 or 15 ft down or up where
 possible - def in velocity your
 position, or 2 pieces of board

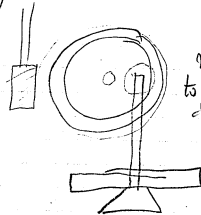
for anything out of phonograph
 record the shell gun use
 the other diagram



Metaph with incandescent lamp
 also spark tube.
 possible ring of silver inside.

Nov 15/1916

Photographs by Telephone
 2 synchronous cylinders
 One has Disc Speaker 400
 thread to inch - photo by
 gelatin process on cylinder
 Recording end with
 cylinder + engraving surface
 passing of depression of
 variable surface makes
 sound this is transmitted
 over telephone a recorded
 on Phonograph - from
 this by Plateau Mating
 obtained from which
 plateaus are made -



Metaph
 to use thin
 discs etc.

Semi-suspensions
Clay - Ultramarine, Wheat starch
Gum Mastic in alcohol poured into
Copper Sol.

Non Reversible, Tannic acid

Reversible Colloids (Molybdis acid
not Coagulated by Electrolysis)
glycogen) Dextrin, some dye
stuffs Tannic acid Congo red
Arsenic Sulphide - Silica from Si. benate
Soda free by dialysis, 42.5% about
Coagulate.

Ferric Oxide dense colloid
Tannic acid.

Tannic acid is a most remarkable
Colloid - not affected by anything
I found this the only colloid that
worked on Micrograph

Colloidal Cu Sulphide
& many metallic sulfides

Gamboge Carmine (Dye)
Fluorescein, Uranium
fluorescent dye stuffs generally
Indulin - Violet black
Amber blue A dilute solⁿ
of scarlet in alcohol poured
into 6 pt water & precipitated
gives Brownian movement
shows separate particles in
Ultra Micros -

Dyes whose particles are too
small to be seen in Ultra Micro.
Fluorescein Eosin, Methylene Blue
Bavarian Blue

Colloids - Benzopurpurin,
Neutral Red, Capri blue
Picric acid
acidified Thiosulfate Solution

Twist E string of Vial as far
as possible then tighten & test.

Noncrystallizing for Copper plating

Wool Navy blue B

Patent Blue

Bismark Brown TD

" " R

Fuchsine -

Ferric hydroxide Colloid carries a
neg. chg. all metal is deposited on
anode - White Chromium,
aluminum hydroxide, Methylene blue
Bismark Brown, Haematoxylin
go to Negative pole,
Ironing, Caranumel, starch
go to Positive when in acid
solution -

Hydrogen Indicator

Closed chamber & porous plug
put extreme air in under
3" water pressure & note time
it takes for pressure to
equalize - Use porous porcelain
Dry air, 15" then def. % of H₂.

also time of loss of pressure
when air containing Hydrogen
passes out through long
Capillary glass tubes

Pass gas through liquid from
Capillary tube - note size of
bubbles or number per minute
on constant pressure

Pass air into glass with potassium
peroxide chips - glass max
& absorb O₂ if H₂ left
what's left should show on
index rise of Hydrogen

Chamber - strip of gallium
Electrically heated, after cleaning
of H. Let air in, H. should
be absorbed in liquid, scales
Column should

Nitride forming scale
Capable of electric heating
in closed chamber

Pass in air heat ~~in closed~~ Nitrogen
after air passed ~~in closed~~
bal. to H.

Receptacle with redaptube
Containing Chlorine of ~~substance~~
Close receptacle + HCl formed
detailed ~~acting~~ in water
paper changes color

Closed chamber - pass in air of boat
+ Extra H till it reaches

Explosion point - amount of
Extra H added is the measure
of safety & use copper + Zinc
sheds inside chamber a spark
plug - Chamber should be
Read by water amount of H.
necessary to explode

Naval - Molograph double waves
250,000 sea - high in very high speed
shutter breaking up into dots
clashes, reduces speed of camera
to bring down to 1/1000 sec
to record photos -

Wash Resinate of Lead in
Alcohol to dissolve out
any Resin -

Find out why Resinate Lead makes
black ~~any~~ when it turns white
~~in water~~

Retest the 3 sets of records
made with increased amount
of E/4

See if Resinate lead solin
phenol - also phenol + alcohol

Was $\frac{1}{8}$ long bullet, res $\frac{1}{2}$ of
equal # -

Ophthalmic Anhydrous Cap ball
makes very hard copper
Small cell 10 50 100 milg &
1 gram - tested hardest ball
bullet, 10 milg good

Belladonna makes eye exceedingly
sensitive to light.

Normal eye would be OK in
Binocular at a distance
~~But~~ Can be used any number of
times if no tenderness to glass come
those under 30 not affected are
OK

Should not be used on any eye
until tension taken before hand.
Continuously use sometimes leads
of inflammation of Conjunctiva
Expert suggests use of Homatropin
He also suggests use of Atropin
He also suggests use of Atropin
last as long as possible can be
counteracted by $\frac{1}{2}$ % Eserine
this acts as a Myotic
Homatropin & Cocaine drops
 $\frac{1}{50}$ each would be what is
wanted.

Dilatation requires one hour
for maximum effect
Accommodation can be
restored in few hours by using Eserine
Ralt G Reese MD 509 512 St My

Resonate send 175 grams Van 10
grams Resonate carbide followed
three thin linin with little
Vac filter -

Try Benzoin, Salicylate
Opalated Citrate, Tartar
succinate & other hard organics.
Salts for Van instead of
Resonate.

Absorption of light from
an arc light in atmosphere
is 10% of whole per
kilometer so it is
Must be wrong this only 10
miles -

Side Light Vision - confused as
to detail but for subject
Sensitivity - Microscopical
with Carbon spectrum

Any disturbance of the internal
vibration of a molecule causes
waves to be sent out into space
on the ether. Heising sends
out heat waves
Should think an electric glass
should send out X-ray waves
to space. Magnetic changes
other waves etc. Chem action
still allows - What is wanted
is a line of instruments to
detect such waves & make
them constant to our senses

In addition to the ether of
space there may be a far more
diluted gas than hydrogen
in our atmosphere & extending
millions of miles into space
& giving out 15 lbs pressure to
oppress us, but tons of
pressure but nothing to do
with the ether & not taking
part in any transmission

due to changes of barometric
pressure, sound waves of
250,000 per second of great
sharpness might be transmitted
by this gas. a million per sec
would be better & thus practically
could be obtained by
disturbance of crystals or
strains in dielectrics by
varying ϵ with gases.

Think vibration of the steel
hills of Alumin. rec. enough
sounds to give a signal
that with the 78 of Alumin.
the Malagaish. etc. any
detection mechanism
would detect 5 miles away

Sound at radio projects light & radio
as in a resonator vibrating at
mouth repeat a light disc
think 100,000 sec give good
result.

If the internal vibration of a molecule
is the source of the vibrations of light &
heat then probably the lowest
vibration per second would be
250 million million per second
being the vibration at ordinary
temp.
Now if we want to get slow &
entirely new of rays of vibration
we must heat to get radicals
or complicated Molecular
Complexes or Crystals
These would give the red heat
& light waves but superimposed
on these would be very
much slower vibrations
(b) those due to the double
salt aggregates or complex

or crystal liquid crystals +
Cells as perhaps as slow as
50 million per second the
trouble will be to find an
instrument to bring out
these waves = possibly the
darkening of silver plates
When optical substances
comes from these waves
as noted in X ray experiments in
innumerable cases

If Cancer is due to a germ
it could be proved by putting
on top of a skin cancer
a more attractive pabulum
that would cause the germ
to migrate from the flesh into
the more nutritious pabulum
Especially as the germ has
to fight to penetrate
protective bodies of the host

Braceas to make a lens for
reflecting ~~Sp~~ ~~lines~~ -

Hurry up Resonance ~~lead~~ plant

Make some 1/2 Res Mag + 1/2 Resin
24 prints -

Illuminated ~~Chlorophyll~~ ~~loss~~
its activity in ~~1650~~ of a season

Photon Oscillator 50 million
waves a sec ~~of~~ ~~half~~ cathode
tubes ~~of~~ ~~the~~ ~~Elect~~ ~~Review~~
19-771-(1916)

Color photography (and Red blue +
green Cathode dyes having
fairly quadruple partitioning)
mix equal parts of red + green
sterile plates + put ~~in~~ ~~sun~~ ~~light~~
as like luminous -

See if we have any BS
an also we have a cell-
try for blayski -

Try plating iron on celluloid
graphitized etc of rods -

Make wax seal on celluloid
Record with Reg disc speaker

See how Dr. W. D. did with
printing with 850 lbs for 1/2
min + furnishing at 250
lbs

Walter Miller got one of those
Comptelows seconds 150 threads
want to see if the condensate.

Molograph = Fry Hydroamine -
dith Carbon, Sulfur, Silicon -

See if Ferricy Copper is decamp
in our plating bath.

Get all the Vegetable Dyes for
plating Expts.

Maxwell Estimates that in
1917 we will sell 125000 Discs
50000 Copies

Requires 175000 points.
1440000 weight on basis of 6
point to Kart see next page

Jan 3 1917 Diamond valuation

in machines at Orange + Chicago	2921
finished specimens in clock	8420
finished points in arms	1692
	<hr/>
	13033

Auberola finished Speaker	9327
" arms	3153
	<hr/>
	12480

Diamonds in holders over edge	10 000
" tapered for grinding	20 000
points ready for holders	30 000
in holders ready to swap	5 000
	<hr/>
	65 000

Diamonds in Vault	15942 Karats
Sand	275

Ultra Violet light ~~at~~ electric
 surface - Wax ~~black~~ &
 Celluloid

Should try most sensitive Balmain
 luminous paint on glass exposed
 in Camera then lay on Dry
 plate & let it ~~expose~~ itself &
 develop. ~~It~~ can get
 rapid work in very weak light
 this way

The Holograph principle either
 with photos or ~~optical~~ ~~illumination~~
 use of ~~lenses~~ & ~~proper~~ ~~illumination~~
 surface is going to lead to big
 results. All ~~of~~ ~~the~~ ~~things~~
 change & with ~~illumination~~ ~~of~~ ~~various~~
 of all kinds & all wave motions
 take place at junction or surfaces

Why not make a dry plate
consisting of a mix of powdered
selenium and lead sulphide
base on the practical grounds of
cost.

Bond of Carbon is next to
Diamond in hardness ~~actually~~
grains of facets are diamonds
& Mossawago

Boron mixed with Carbon
Copper matrix - see Mossawago
find some one who has
furnace & also way to
make cheap furnace

Ask Brown of Providence
Co if he can give me a varnish
that will conduct fully & not
soften - Let out it for
Diamond lap

Diamond lap cylinder 1" long
discs 3" dia 0035 battery
Steel - big mandril 2" dia
Requires 12 Karat sand in
Varnish sides of Edgic Varn to
1/3 of inch thick.

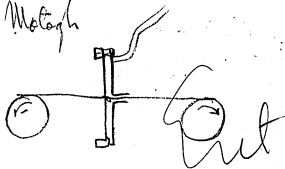
Varnish couple blanks with
Pb resinates Varn bring up in
5 hours in Oven to 220°
L Oil - print -

For diamond laps - Malleable
iron -

① 3 x 6

Varnish over with dust & shellac
dry & then roll with small wheel
powerful press. Then dissolve
off Varn - saw dust not cleaned
4 Karat Edgic

McLaugh



Mr Bullock Northcliffe ayt
London Times
30 Church St
7250 Cont.

Take the Melted Res Mag. 9
made use $\frac{1}{2}$ + $\frac{1}{2}$ Rosin
+ Melted clay in 6 minutes
press + heat 130 fahs
1 hour.

Made in 1916 - Value of Ni produced in
Canada \$23,000,000
in 1915 20 million 1914 13 million,
in 1916 only 1 million - 2 large Cos
a 3rd starting -

When the cylinder disc lap wears
immense in Acid Copper solutions
Eat the iron, or wipe it as Cu Sol
might penetrate between -

Flat laps are certainly preferable to save
Diamond dust, but is it possible to get them
to run true

See what of Electric Furnace Res
Melted etc get from Dittman up in
Library if there is Boron, dills
Boron Carbide -
McAdams Telephone Reiser of
Electrochem. grad up he knows
of someone who has furnace

Mossman given in Compt Rendu
CXIV 392 1892
Also Année de Chem et de Ph
Série 7 VI 296 1895 -
gives method for production of
Pure Boron not yet tried time
known - get full account,

See Comptes Rendu
CXVII 423. 1893.
Provide of Carlson Mossman

Amorphous Boron - 70 grams of
finely powdered Magnesium free from
iron or silicon is mixed with 210
grams of recently fused Boric Anhydride
Mg is heated in clay crucible to bright
redness, in a few minutes vigorous
reaction takes place. The central
portion of the product was isolated with
water + HCl till Mg borate was removed
then treated for long while with successive

quantities of pure boiling HCl washed with
water, treated with alcoholic NaOH, again
washed with water, then boiled for
several hours with Hydrofluoric acid
washed with water & dried in a Vacuum
Product very light Maroon powder
Does not deliquesce on exposure to air
Contains 94 to 95% Boron 2.3 to 3.75%
Mg + 12 to 1.6 % of water

If this product is fused with 50
times its weight of Boric anhydride
& product treated in same way as the
original process, it contains only
traces of Mg. If Boron is required
free from Nitride, reduction should be
in a Crucible brought with mix of
finely divided Titanium Oxide & Carbon
Mossman Comptes - 114 = 392-397

Metaphosphates for Leland

Diamonds in steel = Leow Frank
Chem Cent 1896 II 573 & from
Stahl & Eisen 16-585-588

Various steels heated a la Moissan
all gave diamonds many requiring
25 lbs to 3000 power of Micro
to see - all sunk in Methylene
Iodide -

All action of light on chemicals
always tends to produce
Compounds which have a
greater electrical conductivity
by using Volhard's Method
(Light absorbed) and some very
sensitive effects from light
of Gibson Zeit physikal
Chem 1897 II 23 = 349

Phosphorous Nitride P_2N_2 P_2O_5 & 450
Chem Soc Abstract 1897 Dec p 469

With a Mix of 2 H & 1 O. Dry
Platinum Oxide at 280 Celsius
All the gas is absorbed
the O combining with P to form
Phosphorous pentoxide which the Pt
reduces to Pt metal
250° C lowest possible temp -

KOH acts same way at 280 & 300
all in glass vessels C R 1897
125 = 271-275

Find out where safely stored
Kept in jars of wax

Also consider keeping some in
safety deposit vault

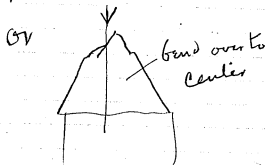
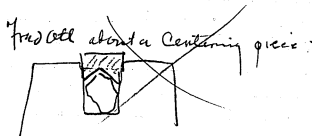
Which has charge of diamonds

Look at hundreds notes see how
much sand per day per cylinder &
oil pit or amount sand for polishing

Action of light on large number
of chemicals. Max Holoff
Zeit physikal. Chem 1898
26 - 337-361

By getting 300 or 400 mesh
fluorescent particles put on surface
of a flat plate with opaque particles of
say charcoal between, you should
get a very fast plate for the sake of light
on this account taking principle
developing effect of fluorescent light
has entire effect. Can get
settles to fluorescence on all parts
of the screen - This should
give rough outlines of
a workshop -

See abstract 1898 pt 102 Read for
war



How would it do to ground
instead of turn the points
every 4 weeks

Had Ott - see that squeezing
jaws bring diamonds Central

H. Rigollot Compt Rendu 1895. 121

164-166 - Action of Ultra Redon

S. No. 5. Sulfide - uses Ag plate

Sulphuretydly Current in dilute
sol. Sodium Sulfide

plate 40 mm long 2 mm wide
Can be used for considerable

distance below visible red

Max Emf 0.053 to 0.094

Illuminated plate always neg
no matter what solution used

Heat has very little action
but some -

K chlorate decom in presence

Manganese dioxide -

H₂O₂ decom in presence Copper

Battery - Hot clay

Luminescence of pure organic compound
Wiedemann & Feinhard Zeit physikal
Chem - 1895 18 - 529 552

Abstracts 1896 Chem Soc Jour Trans
for chem - also 1895

J. Adolphe Besor Compt R 1895

121 - 125 128. Chlorinated compounds
in presence of O₂ decomposed
by light ground acids etc

Electrode sensitive to light

H. Duggin Zeit physikal Chem

14 - 385 - 393 - says most

sensitive of Pt plate
covered with Pt. Illumine by
paired with similar
contact silver plate

in 15% normal sol of
KBr in diffused daylight gives
0.40 Volt.

Shudge from weeks work with one
roughing machine gave on recovery
8.795 grams
or 43.975 Karats.

I have still a little more to go with this
Hurd estimates 37 to 38 Karats used.
Something wrong here.

L E O De Visser Rec Trav, Chim
1901 20-435-456

Ba Sulphate pure, and phosphorus
of 2 atoms of Bi to 100 atoms of
Ba Sulphate is mixed
at ordinary temp of phosphorus
one month after appears to
light at low temp. plates is not
so obvious but remains for
a longer period while at a
higher temp the reverse is
the case

P Vignon Comptes Rendus
134 902-994 Vapors emitted by
Zinc are capable of acting
on a photo plate.

Meyer Widdernow Rep Roy Soc
1902 70-66-74 ~~of~~ of
light on $\text{CO} + \text{Cl}_2$ alone
accurate measurements -

Read Chem Soc Abstracts
1902 -

Frankow Chem Zeit
action of light on sublimed
Chromic Chloride of Benzene or
Napthalene ~~or~~ Camphor
sublimed stuff always
went to atmosphere
part of Benzol

When a solution of Nickel
0.05 gram to 300 cc
containing Chromic acid
& alkali polyphosphates
Electrolyzed at 70°C
using 0.1 amp 54
hours N_2O_4 formed
Auguste Holtard ComptR
1903 136-229-231

Read 1903 Chem Soc Abstracts
for com. phosphorus etc

(50)

Kislakowsky Zeit physikal Chem
1908 35 1431-439
 H_2O_2 having few drops Ferricyan
1% sat H_2O_2 ~~with~~ very little
decaying but when exposed to
light very peculiar

Dubois ComptR 1901 132-981-432
Many organic compounds when
warmed with alcohol KOH
yield solutions which are
luminescent in the dark
in some cases at ord temp. —
Essence Rosemary Cyprip
Rose Camomile
Best results with Alcoholin
This alcohol gives a solution
which remains luminous
during a whole night
luminescence increases when
shaken so air get at it
luminescence destroyed by
adding H_2O to alcohol the sol
but all less than Marine Beaten

Oscar Gros (Zeit physikal)
Chem - 1901 37-157-192

lance bases of a number of
Colored derivatives of
Triphenylmethane sensitive
to light - Darkening most
rapid under rose colored
glass. addition of salt
generally improves resistance
bleaching of dyed materials
also useful for
good long paper

Tschugaff Ber 1901 34
1820 1825

Triboluminescence
Crystallum sub liminosum when
rubbed or struck
see Wiedemann Ann Phys Chem
1888 [11] 34-446
tried 500 organic substances
Uranium nitrate strongest
Quinine Valerate, Cocaine, Benzoylato
Cinchonamine, Quinidine
+ Amine HCl both weak
liminosity ceases when force
stopped except with alkaloids
+ sulphuric acid

Otto Ruff + Victor Stein-
Ber 1901 34-1668 1684
Sensitiveness of Diazo Compounds
to light

Read Abstracts Chem Soc for
1901. for light etc

Mourillo Compt R 1898 127-372-374

Intensely phosphorescent Strontium
Sulphide obtained
100 grms Strontium Carb
2 grms Barium sulphate
2 " Sodium Carbonate
+ 0.12 grms MgSO₄
after moistening the Carbonate
with Sodium Borate
heat to redness + then mix
with 21 grms Sulphur +
the Barium sulphate 5 grms
heat to bright red for
4 hours
its stability stable

Mourillo Compt R 1899 128
357 589

Strontium sulphide shows a more
intense + persistent phosphorescence
when excited by diffused daylight
than when exposed to direct sunlight
Ca Ba + Zn sulphides show same
persistent exposure of Sr Sulphide
to diffused light makes it more
sensitive to subsequent exposure
whereas exposure to direct
Sunlight reduces sensitiveness
may destroy it all together

Repeated exposure of Sulphide
for short time to diffused
light it becomes as sensitive
that marked phosphorescence
is excited by the light from
one candle it also shows
intense phosphorescence, which
healed ^{completely} before red heat
One phosphorescent Sr Sulphide
which start another phosphorescent

Read Abstracts Chem Soc
1899 for Light -

Get from Emu (a man)
Some porous plates
for filtering the Diamond
dust straw +

Infra Red can be seen in
the Chloroform box up to
8600 by concentrating
the light on slit a
filtering out the minimum
rays by a film in CS_2

Read Chem Soc Jnl
1884 both Vols
1883 both Vols

Mix of Chlorine & H_2 - Chlorine
must not be exposed to light for
an instance if it is thicker Cl_2 will
combine with H_2 in the
dark -
increase in H_2 & Cl_2 & HCl
measures development of
Compound to act on by
light -

Requiere studied Dunford
Red up to 14700
by projecting infra red
on a phosphorescent
screen Couplet R
96 -

Abney - Proc Roy Soc 35/1868
ray below 8300 can be
photographed when air field
motion.

Between Nov 9 + 25th/16
Crushed 998.99 Karati Gout
Loss from crushing 27.98 Karats
Loss from Chipping 26.98
Karats - Gross Loss 54.29
But after saving benches &
floor recovered 26.79 Karats
971.20 Karats used
19 days.

Wend - after rough turning
inspect & only use
good ones that you
know will be ok
& we will discuss
the actions -

7

Sodic per. Oxalate is sol in water
& very sensitive to light

Agrom. Iron Chlor. in presence of
Oxalic Acid, Tartaric & other
organic acids is reduced slowly
by light;

Ammonium Bismuthate is somewhat
decomposed by light, after time
yellow & there is a pinkish-brown stain
on spec. Pressure

Bromide plates are
most sensitive to light than
450 wms length rays by
diminishing the width of strips

Sulphides of Ca Sr Ba are
most sensitive to rays more refrangible
than F while Aluminium &
Selenium are between D & F

Iodide of Pot if treated with
a small amount of ^{or potassium hydrogen sulphate} hydrochloric
acid in diffused light not
sufficient to color it will
when in full light turn
yellow from free Iodine

Mercurous Selenate Hg_2SeO_4
grayish white amorphous
Substance obtained by adding
Selenic acid to an aqueous
Selenate to Mercaptoacetate
Very rapidly darkens when
exposed even to diffused
light

Dimercuranionium selenate
obtained by treating Mercurous
selenate with a strong aqueous
solution of starch
(white compound) darkens when
exposed to light

Mercuric Selenate obtained by
adding gold to selenate the
Mercuric acetate darkens on
exposure to light

light acts on Calcium phosphorus

J+P Curve Comp R -
91 = 294-295

Development of electric polarity
by pressure in hemihedral
Crystals with inclined faces
pyroelectric Crystals by pressure
give same effect as with heat
Blende, Sodium Chlorate,
Boracite, Tourmaline, Quartz,
Calcium Topag, Dinitro Tartrate
acid Amine & Selignette salt.
(Observed a non conducting
hemihedral Crystals with inclined

face suffers Contracture
Electro-polarity is developed
Whenever its detached face is
also developed but its polarity
is reversed. Connect the
Diaphragm - (two) wires
into Elec. cell (Somonphone (Empor))
rather applications -

Athylammonium obtained by treating
Cochineal ethiodide with Potash
solution. Translucent needles
quickly become red on exposure
to light - M. Charis

+ Demerbaun Ber 13 2197 2191
see other things in 5
article Demerbaun of light
also see Ber 13 2390-2394

Kahlbaum Ber 13 2349-2351

Methyl Acrylate light slowly
changes it to a transparent
gelatinous substance

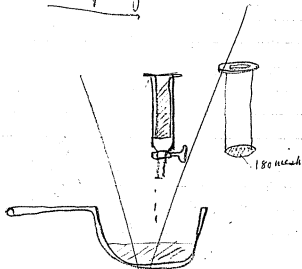
Isotropic Acid R⁷ Fitting
Annalen 206-34-67
Atronylene sulphonic acid & also
Barium salt, Very sensitive to
light

Chloropurpurac-Chrysum Chlorid
red crystalline powder diss in 154
part water to make red salt
deposits Chrysum hydrate
when exposed to light
Jorgensen J pr Chem [3] 20. 100

Stoney Procey Sec 27 291-491

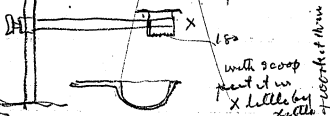
AgBr is not sensitive below β
is when exposed under
sodium sulphite rays
sensitive to M₂ (about Wagon
length 12000 M₂ lowest
limit yet photographed)
Infra red is very oxidizing

Read Chem Soc Abstracts,
1890 or 1891 for light.



Drop the drops into Nitric + N_2SO_4
mix.

But perhaps this will stop up
+ its better this way



Read Chem Soc Jnl,
1848 - 1849 1870 1874

Try for extracting color out
from P. ~~... ..~~
~~Carbon tetrachloride~~
~~Bisulfide Carbon~~ =
~~Chloroform~~

Pale blue night groups
out at sea

Way out lines sink
with groups every
mile, 20 miles from
at center of oceans
lines

Alvatt 1-24-17
Diamond Report

102 cK

7 lost

4 Broken

9 flawed

3 Rejected before grinding

Used 92.275 Karats for grinding
(Recovered) .756 K per point

Consumed 51 hours average 25
neen per point.

July 25 -

got 218 on 1 machine 6 Karats

.00 grnds 135 cK for

Revolving + polishing

71 cK for 2nd grinding

operation with fewer grains

8 flaws & broken

Alvatt to date 1/25/17
has delivered .5381 points
to Howard 145 Karat
.3711 points per K delivered

Scraped

26th ground 54 points lost 2

Broken 1 flawed 6 OK 44

1 machine 10 hours

used .4907 Karat per point dust

27th output 54 points -

flawed 12 OK 42

.5785 sand 30 minutes

Scraped 27th - ground 28.

flawed 3, OK 25, used 17.71

Karat .6217 Karat per point

Cooper grades Acetic Ether
95% 500 lb lot 26 cents
Amount 15, Credited on section
\$ 195 gal about

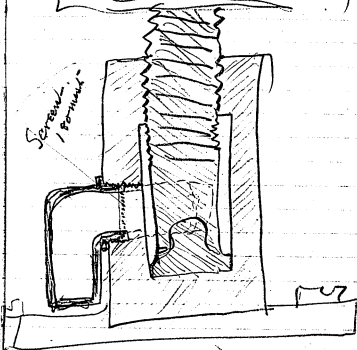
Chemist - Dr R. Rutashausser
% Col. O.C. Hornig -
(Swiss) Aitna Chem Co -
6000 North - 12013 Way ny.



Scrub

Diamond Crusher

Imp Charles Grout's clay
with the silicon oil



Diamond
Crusher

Ask Dvor on phone if they
have any Balmian or other
phosphorescing sulphide
mat mixed with paint
material or if it will
mix w/ LB mat most
sensitive

Report on regenerated diamond
dust.

Machina # 1 Run 2 weeks
ground 449 points used
255-445 Karats recovered
diamond from grinding machine
Average dust per point
•5689. Lap was perfectly
dry when changed -
now changed

1/31/67

Machina # 1 30 points 27ok •4297R
" 2 47 " 42 " •4125 R
" 3 19 " 19 " •6289

3 new mach 2 hours 1/2 run
sent thru 224 points ground, for impurities
rounding operation result
198 ok 13 broken 10 flawed
3 reported to be re-ground
Revised to date from Oct 142
Vials recovered sand approx 3200 Karats

Hoffman vaci 44 1/2 gal
force vacuum for dusts
daily 21 also eccards
over size

Labor Costs diamonds

Drilling Chucks	•0018	per point
Sanding	•0025	"
Routing	•08	"
Grinding	03	"
Rounding & Polishing	•10	"
Turn & Cut off	•0075	24 1/2 hrs per point
Assemble in case	•026	"

(17)

20 cc Straw oil heated with 300
mls Potassium Covers 10" dia
good Amalgam - with use of 10 cc of mix

900 000 lbs oil - 7 1/2 lbs gal 8¢ gal
120 000 gals \$ 9600.

7 Tons asphalt \$ 25,817.50

Total \$ 9775 per MILE square.

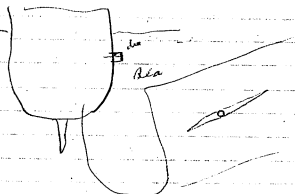
P.P. of Straw: 250 to 350° Cent

Experiment with Amalgam oil to
address something that will add
to its superficial film tenacity
so bubbles can be blown
the larger the bubble the
better the mix will be for
calming waves & sanding

Don't its physics
says few drops
Enough Alcohols

will stop foaming - try
in our cells or above paper
see if affects battery on
Endrunner test. Alkylal
works but too expensive
but its usual, another way.

Sodium phosphate alone
with Carb Soda - stops foam bubbles
Sibmarn Dolephos. if
Microphone used use a
multiplying lens of
greater diameter than on
Req disc as water
amplifiers are very small



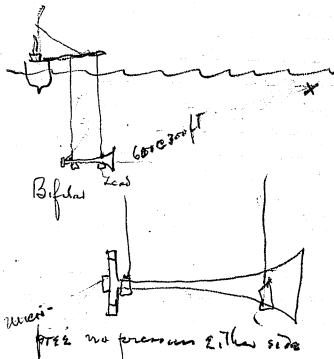
Red + heat waves causes Balmum
etc absorption coefficient to
lose phase quick

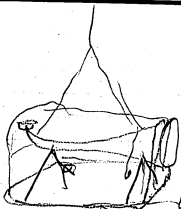
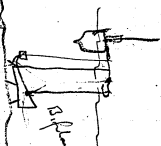
Transformation of slow
waves into more rapid ones
When Sol of Naphthalene Red
has been shown upon by
beam of deep red light
it emits fluorescence in
orange yellow.

Chlorophyll ditto
Chlorophane, the impact
of slow radiant heat
waves is compared to
set up an emerald green
light.

Pressure in sea water about
 $\frac{1}{2}$ lb per foot, depth.

I told Purchasing Dept
Charge Luminol
paint to Edison personal
(X) account -





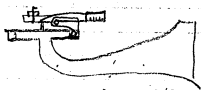
bottom
plate, rest on bottom,



let down parcel
with boat
then turn it
any desired
position by
bifilar arrangement

Good range 3 deg at speed
 $4\frac{1}{2}$ miles - to ~~reach~~ open window
travel 5 feet - scraping off
5 ft of mud, etc.

Usual conditions are
10 Knot speed raise
5 deg this scrapes off
3 ft of sundown
before window uncovered



Amplify with lens 5 to 1

Wavens
Hatch
Hollow
Taylor
Kennedy
Decessy
Moore
Conisale
Anya

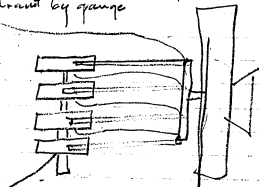
2 periscopes on each boat
Each rotates in horizontal plane by
Elec Motor or hand from below
Man at each periscope.
American periscope hidden vary 3" to 5"
dia -

Window is about 3" high and angle
of vision 40 to 60 deg
Lowest cruising speed 4 knots
Max 10 knots - but engaged
Object of riding for an observation is to
keep the boat on as near level keel
as possible - The angle of rise
being about 3 deg. In good handling
a rise of 6 deg is bad handling
Periscope comes up to a height of
about 5 ft above water
This height varies with sea
conditions & with the observer
& distance away you want to
see. Ordinarily observation
is from 30 seconds to 1 min
seldom more than 1 min
Engines are 6 Cylinders. There are

2 Engines, 150 @ 300 HP each
2 propellers Engine speed
about 300 RPM at full speed
on surface + 250 RPM submerged
full speed, slow speed 125 @ 150
RPM

Hutch ask DeForest for a
copy of the ~~technical~~ ~~in~~ his
Curve on ~~rotation~~ +

Tails = 1 1/2 dia 1 1/2 thickness soft brass
beated at 63 lbs water pressure on
hydraul by pump



Malongraf device =

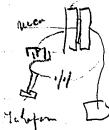
Ask Hutch (get me
hydrographic chart
around Great Britain,
~~the~~

Upper Hudson River
is probably best place
See hydrographic map
& also Chrousby
1891

Ambrose Light Vessel
48 miles nautical from
St. Colons Light Vessel
60ft + Ambrose 59 @ 65ft.
Both have 600, Ambrose
has submarine bell

Suggest DeForest, P. Judith 1-1-1-1
up to 6 - each having
different diameter ~ (8)

perhaps a single film of mica
between 2 points will amplify
sound



In a small boat with say a 25 ft
funnel microphone + a microphone
Rupert's especially if used
Eliograph could probably
detect presence of submarine
10 or more miles away
& hear talking 5 miles
Certainly hear a submarine
on top changing 6 miles
or more away possibly
10 - & get exact direction
possibly triangulate it with
phone + find it

perhaps Balmann paint
Can be sensitized for infra red

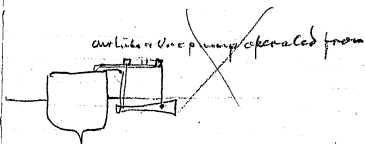
Wells ~~will not use water~~
jacket on moulds -

4. Find the small Experimental Malaga
& all the devices used with it
also have John etc make drawings
for new elements described in
my new sub note book, also in
big book in which is contained
the old pla covers & also change 125"
Experimental to a system Malaga drawings
& put description against it
A Tompkins detector (English)
has 3 V6 per second the hulls
or screw,

Ask Hutton if war ships
always go in ~~direction of formation~~

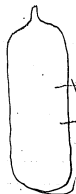
To prevent fogging with Balmain
paint, after lead dry put on
Calladon or some non light
absorbing varnish over paint.
So no vapors get thru to Emulsion.

Expose all my old X ray plates on
Chemicals + then lay over a plate
plate, see which outside wraps
give black. Those that give black
after 5 min - make up plates
of the chemicals to not take
Balmain -



Deck when water appears the Cock
is closed + Tube clamps to
Bifilar wire, + valve lowered

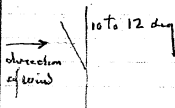
Tell Constable that can
lower with horizontal
parallel to ship -



This makes bell's
arrangement

a gun fired horizontally
Ball will drop 16 ft in $\frac{1}{2}$ second - 61073
if velocity is 2800 ft/second
then it will reach earth
after going 1680 ft.

Windmill - angle of plate



Moving pic machine - film as
fast as ground out glasses into
develop so can see it in
5 seconds & in fact proposed it
on big scale -
also brush plate or film
over with developer
& then dry - then plate and

wet plate should develop
instantly - possibly if
plate wet with developer
then it semi dry @ damp
that it would develop
in the camera itself

Try a smoke screen which
is to light of day but
permeable to a special ray
from area so we can
see Enemy & they can't
see us -

fighting top narrow circle to
show line to Enemy & a
smoke blast at end ship so
blatant ship appear several
times longer than it
really is

~~to be used in the sea~~
Sea over



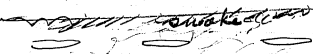
We can see them on sea or block
blocks -

The smooth bore projectile could
be used after Spigot worn
out - double the shells before
Returning

Find out highest pressure
lower noise -

Shoot up vertically a
Camera by Compressed
air - so shutter by wind
close, but just at point
where it is open and it opens
+ probably perhaps in a circle
+ drops by a parachute.

The boat picking it up -
possibly at night use a
Magnesium flash -



Black oil film & small metal
boats spraying ahead

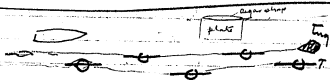
low visibility to detect
Enemy not to us -

Black smoke

usa

Enemy

Black smoke no definition



buoys with heavy plates
for explosion to strike -

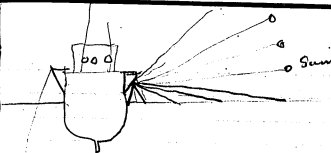
These boys could be towed by
powered tugs as a screen
for torpedoes

Spectroscopic signaling

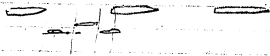
Direction of wind for signaling
by forming a propeller exploding
to a small black or
white - towards enemy

Large suction fans 25ft dia
draw smoke from downwind
enemy so as to see

Extension with fine towers from
tugs meant for Range finders
Nearer with guy wires -
when in battle, stand
pivoted to lay horizontal
perhaps gyroscopes



False
side to increase invisibility by
reflection downward



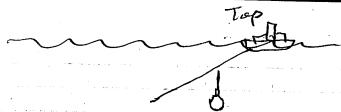
Small boats with false extended
upward sides as high as twilight
blaking as screen between
ships + so enemy sees

Towing plates forming a Corral
for the downwind tug at night

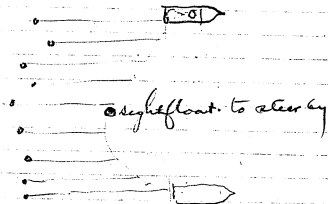
Why not use a 5" telescope on
War net with it pivoted on gyro
& Range finder

~~Put my telescope in order~~

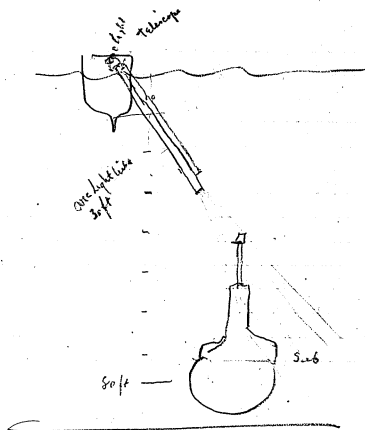
Suggestion of Induction
bathyscopes seems good if want to
locate submarine in deep
water, if sub is down 75 ft
& depth is 200 or more so
wrecke float better than range
Coil 25 ft down to escape
ferrocane or probably even strike it
wrecke if placed in calumna
& intermittent current used
certainly indicate position
of submarine.



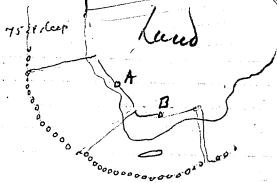
Drag wires, when strike submarine
Resistance enormously decreases my belt
13 fathoms



Drag wires - 1000 ft apart.
Run out and back
from wire boats 4 @ 6 miles hour.



How deep down can an 16 CP
lamp be seen hanging on bottom
of Ocean with reflector.



Cable with coils every 25 ft laying
on bottom, ends at stations A & B.
w a continuous bridge with
sensitive means + before reaches
say 10 mile section, any
submerged submarine passing
over the line would be heard
less sections than 10 miles could
be used

at night 28 ft found some more
Morse code rockets - knowing
direction, can have gun ready
yet fairly close, let go rockets
+ trust they can see you
+ before can sink you have

(13)

plunged they would have to
run slow to stop nose
of boat but as they are
charging they could not hear
anything.
Capt says fishhook will be
best submerged funnel in
air funnel or both,

Stahl Profiling ~~Very little~~
~~pro common~~ Knows
The working of was useless
Wants English wrapped
aff except heard at this
boarding house tonight

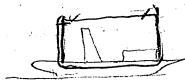
Extension to range under
telescope of 6 ft with
cells like Dunsley see Diminutive
also Eye protected like Fluoroscope
all to my telescope at Eagle rock
Cosmos - It is very

important to keep all the light
out except what is reflected from the
ship.

~~—————~~ x 0
x light is worse than unless as it
reduces the sensitiveness of the eye
Think of tube 10 ft long be enough
Lacquer black should be like Emulsi very
fine & black & varnish should be
non shining var.

If sub located exactly
Explode some mine
near, when sure -

wants to water Mully & tell
him see Walden before
he testifies for Evenson
& Dyer - say of marks
& see points Walden
wants to make

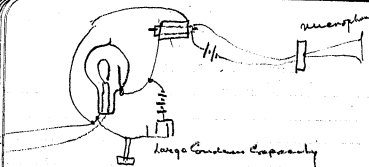


Coil - as long
as boat &
as high as possible

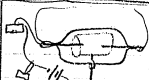
balanced in bridge, using a 10 HP
Current interrupted & sensitive bridge
to detect approach of an
sub, or running under
water,

also around the sides of
ship - balance ship & then go
ahead
possibly a differential Galvanometer
to make more sensitive
or Merson & phone to amplify

Experiment June 6/17 Bunched over a
very dry photo plate coast along
Set of Proust's apparatus, ^{solution} in which was
some Bromine Hydrogenate soda
Then let plate dry. After exposing
to light it develops in $1\frac{1}{2}$ second
& finally in few seconds by using
water with a little Carb. safe
in it - I think can make
a 20" glass wheel & develop
just under photo also a
few lens remedies. This way
could take all pictures, the
loop runs into Boyle's water
& then there is projecting
Merschum & perpendicular
6x6 ft. sq. with only a lay
of 3 or 4 seconds -
an trying Metal Hydrogenous
will be pyrolytic

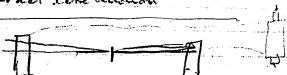


also 3 in series -
 Inductive Coil very high Voltage -



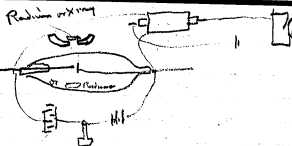
Vac tube at point

where glow spreads out to reach tube walls. It also has a cyclotron motion using a very high mild induction coil current beyond normal cov + choled in telephone sets. Shows act like anode -



powd of silver-headed white by current facing a disc

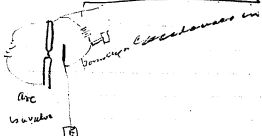
or are light showing at point



or what can it

Heath's Mendocraft about 40 Henry
 Martin to write up the Edison value
 or Waldemar Kempfer's =

Try sleeping in dark room
 record diff sleep after 2 hours
 then put in drop of 4% O₂ concn +
 note any difference if none go out
 to lighted room for 3 or 4 min +
 match - see what is effect



6115

Laying it out on a draughting board
doubling length of dark extension tube
Cut off 4 times the free light not used
for the whip sightling swimming Eye muscle
more sensitive, especially if best of a
dark room =

If device could be fixed for 30 ft extension
on top, most it would be a big success

possible a tube 10" dia running down in
ship to observation room + mirror quadrant
at top, could be controlled, tube could
be 100 ft long + top might be
done away with if range finder is the
only use the space taking its place
guyed

Euphthalmine Continued

→ Transitory action, used in ophthalmoscopic
Examinations, Chronic & acute iritis
Operations on Catarrh of Ophthalmia -
etc 2 to 10% Solution

Merck & Co

Homatropin -

Solution -

1 grain 50 Minimums
of cocaine

It dilates pupil in 7 to 9
minutes - Eye returns to
normal in 24 to 48 hours -
Drug store man saved lives -

Even better than Homatropin, is
Euphthalmine, a cocaine derivative
Maximum strength of it is 5%
One drop put in eye gives maximum
dilatation in 25 minutes & lasts 2 or 3
hours. Does not affect accommodation
lense or retinal nerve ends -
2 1/2% or less will be OK -

Euphthalmine Hydrochloride,

Phenylglycyl-*n*-methyl B

Vinylacetonalkamine Hydrochloride

Mandelic Acid derivatives of

Pala-Eucama, Sol W, A. Mydrastic

5 ft wood ring 18 gauge
2 Cotton Lamps
14179 feet. 90 ohms

Minum .0616 CC
or $\frac{1}{16}$ th of a CC

50 Minims - 3.08 CC

Small gyroscope on end of projectile.

Ocean water ~~has~~ arrived

Projectile a ~~dozen~~ hit
under water ~~and~~ hit
boat ~~Autob~~ -

Think I always run Chalk
telephone line fast for some
experiment used back. 15' data
Chalk showed to run 1 Ray
Min. the speed of water will
be 1000 ft. enough.

Finer than Mustard Seed

Black Mustard small

Turnips

Rape

Cabbage -

Catscomb

Clover

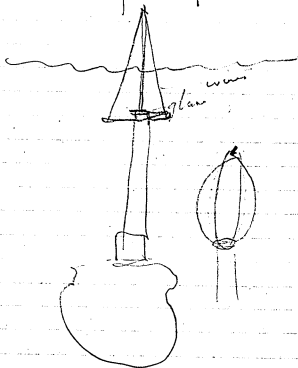
for ^{Chalk} ~~Chalk~~ ^{swinging}
Lamp
English Chantrel, Turnips &
Turnip Rape seed -
smaller than Mustard

Heul Elee preliminary. once a
week - every Friday morning
Final trials a week -
They will put in a Crucible
for us

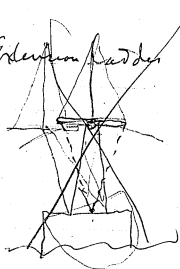
E2 Submarine has a weight
of steel & very approximately
270 000 pounds -

~~Get from Massey 3 audiophones~~

Invariable periscope

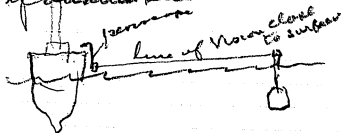


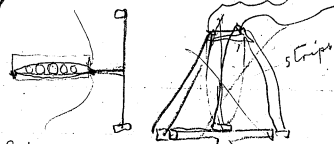
~~Extension ladder~~



Try it

Make Experiment
with periscope vertical
from ship to sight in
distance the periscope
of smaller section





Calamary strip

Very short $\frac{1}{2}$ inches



spongy

weight just so ball bounces

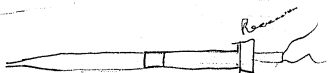
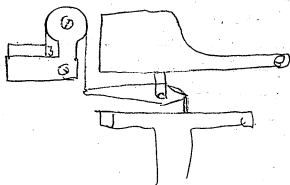
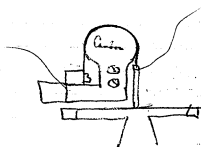
on aero projectile. $1\frac{3}{4}$ wide 22"
long set at angle of 15°
Should hold up 1850 lbs. \checkmark
Weight of a 12" aero projectile
When going 2500 ft second

Get dope from ~~Batch~~ on submarine
propulsion

Try telephone circuit very close to
flay & weaken it as in quiet room
that one can just hear it playing but
can't tell what it says. Use amplifier
Record of talking
Then try microphone to make it
more audible. And also use
the Chalk telephone
Reg up permanently for Reg
testing

Try the Salt water well and
Amudge

Envelope 3" high ^{aero} egg projectile
for very flat trajectory
Shut submarine also
aeroplanes \checkmark



Sliding Resistor for
Water plumb to get ~~into~~
Protruding screw into pump
10-8 → 4 1/2 inches long

If seed light is ~~least~~ ~~absorbed~~ in haze
on the atm. Use incandescent Strontium
or other seed producing ray freely in air
for lighthouse ~~in work~~

Collect a large quantity of
samples of metals alloys
etc from Welch guns
Coiled by middle part in
Bag perforated ~~but~~ ~~sunk~~
~~sample~~ of iron
Ambrrose flight ship
for ~~Worren~~ 3 days
down 1 day in air

Ask Chem Soc Librarian
if he can tell me paper
~~made~~ by somebody
University Wisconsin
& probably when heavy
"2"

Guns by pressure from
oxides reduced by
at a welder = electrolysis

Lay out small
gasoline 4 cylinders
Sh can be made
plaster part
plate it by Waxman
made solution 1/8
then pulsed & put on
more etc -

Incandescent light
protected from pressure
put in see how far
or area say 200 ft
water could shadow
be seen if a Dub

Phone & back Board

What part of gun on
submarine to hurt nearest
by sea water in room

How about big plates
of zinc -

Rig up several pieces
bright steel attached to
zinc plate & put in
sea water in the
Carboys here
& paint with zinc flow
in down

Problems Encountered

- 1 = More power in torpedo, want more room for app.
- 2 = Metal uncomfortable or other way practical given on a submarine
- 3 = Efficient protection of ship against torpedoes at night: small costs, cost of handling + blowings
- 4 = Underwater acoustical light for mine (or fishes)
- 5 = Development high grade ^{steel} turbine into diesel
Castings for internal Combustion Engine + high speed Engine
- 6 = watch submanning to detect presence of vessels on surface + identify them
- 7 = watch submarines always present to absorb gas tanks Cars, gas from gun Collim TNT Ricin
- 8 = Next print for ships to make invisible
- 9 = Good method for ingesting fire on vessel other than CO_2 50% small tank

Invar ^{steel} alloy ^{steel} nickel
no expansion by heat better
than ~~any~~ SW Stratton
Director Bureau Standards
has big supply rod + sheet

Hutch's idea of descending
Muffler on high speed Auto
Ciguine + use it to send
around there a fog is good
if fog is composed of very
small spheres of water
atomized -

photograph by powerful
beam of light thrown
down in water thru
pipe, with blue gunny
Red or other intense spectral

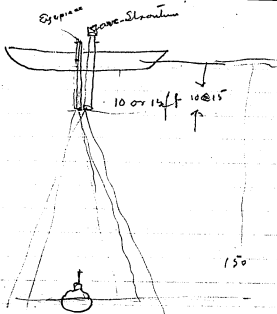
lines of dry plate
sensitized for that light.

Asked Dick for information with direction of last Bureau.
" Also with ~~direction~~
" Mechanism of ~~direction~~
Asked Coates will send the man up
with telephone Experimenting -

Which is well add some spirit Coak
Pulch will get computer from
Washington log.

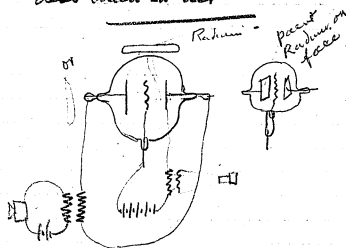
Don't forget Baker platinum
+ side tube Audion -

Aragona ~~at Washington~~
Nears 114 ft ~~at Washington~~
line where man is

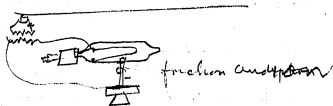


bottom -

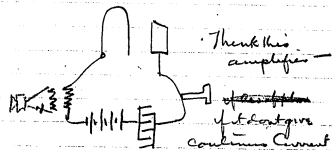
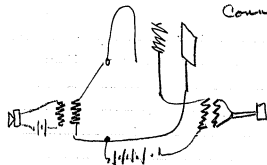
H₂O Ion of unvarying V_a
 says amplitude of sound
 waves in water is 60 times
 less than in air



Radium Anode



Think this is Rechargeable Connection -

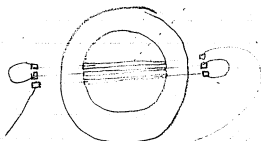


Absolute Transmitter



#40 platinum wire about 1/4 ohm in 1/4 inch
 OREN

Paint higher Res is possible -
metal Etc



This is 3 times the Res

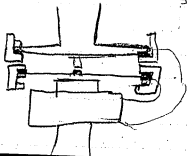
Submarine gun Nickel plate
Paint Dupont + Zinc dust paint
Plate Zinc Connector,

With $\frac{1}{16}$ cover of submarine detector
they will chatter by slight
advancement of waves at surface
a chip slightly moves as waves
advance. Think couple of arms
let down a few inches water
to quite will stop lines of Franklin.

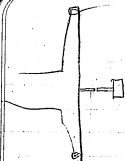
Durand-Stimpson, Worcester

Range finders splashed by
sea Cant see - When you
get Range finders design
Mechanism to draw 001
Polished films across each
tube get a mudged & end
up - like Kodak - shaft
Reaching 2 inch & Central
at many -

Andron 2 fairs 120 Cells
16 Milamp form battery

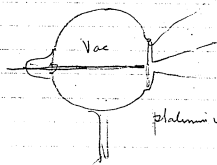


Self-Vibrat
Vary by
Speed



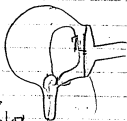
spark source etc vary it

— lens quartz etc or Rubium
: are ultra vac

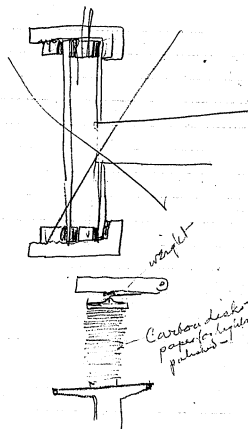


Platini windows

put on passage
fund third electrode point



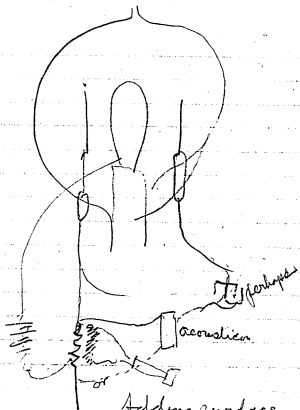
Direction
Valve for
sending



Carbon leather
paper for light film
protection

Eagle Rock Telephone 853

(125)



Adding surface
 When the Carbon telephone

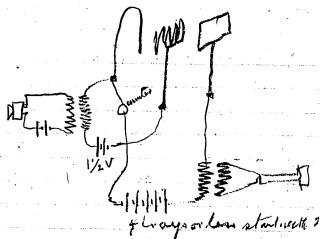
Can try it with Deformed bulb.

Lieut Clarke Ordnance
 officer My Navy yard -

Lieut McWhorter
 Chief of Ordnance My Navy

Call Thompson down
 for petty mechanics -

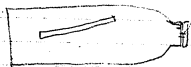
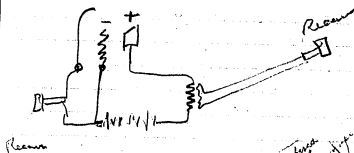
Round tank 30 ft long
 4 feet wide - 6 ft deep
 for Sub Eng -



Sample -

Windmill projects
 Precision Ordinance & Gunnery
 Contains all on the
 windmill or projectiles

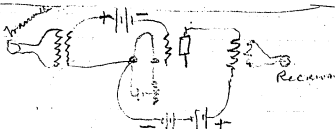
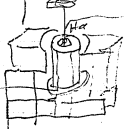
This way may be right



how to use
 as a lens
 1000000
 Receiver

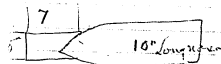
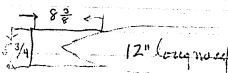
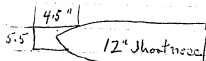
2 plano convex lenses same
 kind of glass
 Same radius of curvature
 about 4" but one is to be
 4" dia the other 1 inch

of chalk phone used
 Run it with a Mono motor
 + storage battery only a
 disc of brass on smooth
 Ring of brass noise use
 Medium Contact.



This is correct from Mathes

Ammoldine wants 2
 plano convex lenses of same
 kind of glass + same radius
 of curvature - at least 4"
 One should be 4" dia
 the other " " 1" dia



Windies of 14" shell 2.600/5 sec
 to 3030 lbs which required
 shell 70 ft per second
 This shell to Critical (in line)
 into second gravity - 1800

See if Andromeda Crushed &
sized to #25 Can be tumbled
to round Zolger -

find out where for 2 w/ get time
detailed also the big Russian
who made Miller Miller's discs & rods

Call up Georgetown if Hummel & G
about winding space of Induction
Costs of the sample it send expect
over,

Get a supply of all the seeds
1/2 lb each & have Harwell
Carbonyl them

Req up tumbling 1 lb to get back
to all - use balls along with impurities

Also tumble them with
the finest brass granules.
See how the Res is working

Tumble lead balls in profile -
ditto Smith ~~Carbonyl~~ ink

Make Drill proper denting
hole in a ~~to~~ Micro
also use larger holes so larger
balls can be used

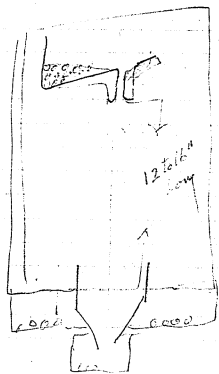
Try peaking holes with
2 Miller lamp glass & piece
water

After getting some notion of
Anderson - try a few Valves
Aluminum Rectifier - Small area

Phone Phil Walters at the
last box for smoothness
after asking W. Elec if they
have 2 more they can send

Expect to get perfectly round balls
level plan ~~long~~

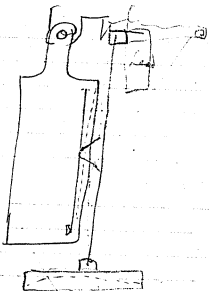
1951



low angle as possible -

After ~~the~~ ~~use~~ ~~of~~ ~~the~~ ~~drawn~~ ~~men~~ ~~to~~ ~~assist~~ ~~the~~ ~~had~~ ~~one~~ ~~for~~ ~~padding~~ ~~experiments~~

How to bring some balls up in
Electric form like flash lamp etc



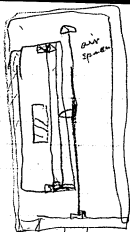
New angle @ socket has 12 holes
angle of 15° 8 @ 9 ball or 7 dia

Ask Price of Genl. etc
Can detect a malfunction
here 2 or 3 weeks
familiar with higher
Mathematics

Smith to take bright
Steel get a solid work
for size. Then
take out & put in
fresh oil Sea water

Ask Dangle for ~~part~~
graduated

John Thomas
Firestone Co
to get rubber -



Reelcase

Have drawn red line from New Berlin,
to 1/2 hour of shore or 180 ft water
50' to 3/4 mile out to sink oil
tanks for patrol boat to get
supply oil - work out
system of connected buoy
or other devices at 1/2 mile
1/2 mile long outwards from land
with small ball can be
dropped for oil tank

Man who captured Mould

Goz Oseyjowito

Superior Blast & Tool works

165-167 Spring St

408 W. Broadway NY

514 South 19th Newark

H Rohrdanz 185th W 15th St
Newark - fine work instrument
maker - can come

Max Buchwald (German)

Elite Dept 236 W 15th St NY

Telephone 5363 Chelsea

was formerly employed at had on
small work Expantal instrument
maker good on small work

Think straw oil may
in sponge on Mergyle
about the Hydrocarbon
from explosive gases
if may absorb some

if another 500 lbs BP
low vapor tension solvent
of Benzol series mixed
well about more, ingredients
+ an alifine high BP
still others -

Bird will get in 1 mal gun

Time fuse for changed poor

Telephone system for two ships

tools at target Sounding between
ships + target sound
Ringer fuses + time
these explosive on target

Ship a ship waits to
detect aeroplanes 10
miles away to get gun ready

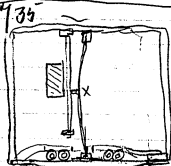
Ship a ship waits to
detect aeroplanes 10
miles away to get gun ready

(141)

Dr Chas S Hastings
 248 Bradley St New
 Haven Brashears Optic
 Expert -

~~Get Ocular paper to read
 + Reply -~~

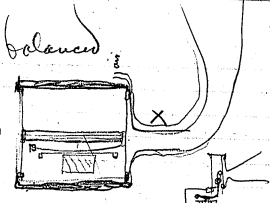
1340 Selections been rescued & reviewed
 2nd Menden barn made of



Best so far 2-20-17
 If X gets out
 adjustment
 raise or lower
 funnel to vary
 pressure

Push to Comedant
 against water pressure

BOSS



Hollow thin tube

both diaphragms connected
 together both under sea pressure
 both move together best as
 X has feedback only X will
 work & have the big waves

Make a 12 ft funnel of
 Brass with 1/4 in dia 2 ft long
 not so much flare say 1/2 in
 Req photo funnel

Reg up bath to plate grow
my plaster casts water
puffed & gruffed get
2 new for this
+ get all data possible
make copy of Diesel
on small scale all
Electrical -
Circulate by pump & vac
filter & get best Colloid
at top note -

Oleum Nozzle. Expt with
water with air out of it
to stop break, then try
liquids high vis coating
Went high speed stream,
Carry long distance without
breaking - Eat up in vic
defuse using dilute
acid-mixd with Viscous
also for combustibles

Try Confetti device for
feeding viscous spray to
Confetti simultaneously
from roll of paper to cut in
pieces, - PS Resin + Castor
make actual Expt &
then for our people a
non adhesive sole for
shoes -

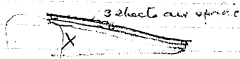
1" gun Maxim fed with
water penetrating head
for Submarine -
high Vel - big chamber
2900 @ 3000 ft sec



Shrapnel case
sawed 50 per cent
mangled in pieces
on explosion

Enough to wound not to kill

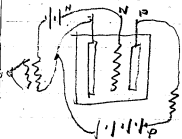
If mud on roads device
 Travelling mixer with water
 Cement feeder to make $\frac{1}{2}$
 the road cement using mud
 itself. when set do the
 other $\frac{1}{2}$ for certifying etc.



X Space for acoustics (down)
 on change - file surface outside.

22

amplifier with aluminum Rectifier



Working on large scale for building
 road body for heavy cutting + trucks
 Bridges - building 16 ft wide 3 mile
 long - 7 various machines following
 with hundreds trucks being along
 use fillers largely - Stone 12 ft
 thick - gravel with cement.
 6% grade limit; Small trees treated
 blue paint for every sign edge + boards
 for holes.

in net system work out way
of sending a bomb along net
till it contacts with
Caught out mouse -

Roll of breadmoulds
are about 15 deg
Can fight at 10 deg
20 deg ~~at~~ abnormal.

Time of rock is always
the same 14 to 15
seconds for complete
cycle

Lotwetz new Mylhamken
coil 3 and second max
fall long - will interfere
with high water
I also want to solve this
problem

Att Fund John Hopkins
College Falls -

Jays - do screen know what
lets only ultra violet through
but can be very much
weakened by coating of 2
or more screens -

Nothing is better than
arc between rods of iron
Hg vapor arc is very good

Following are fairly
inexpensive to ultra
violet

1 Dense Cobalt blue glass
one of whose sides is coated
with gelatin impregnated
with Nitrosodimethyl aniline

2nd = plate of polished
quartz heavily silvered
Silver is almost entirely

Transparent to wave
length 3100 Å

3-d A polarized Crystal of
Nickel Ammonium Sulfate

4. A quartz bulb filled with
Brookite Vapor

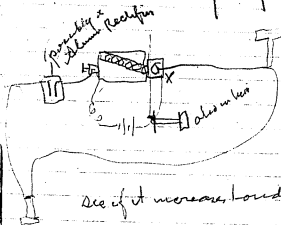
5. A layer of solution of
Nickel Ammonium Sulfate
& $CaSO_4$

Machine gun operation
Use Sun also over
throw beam in their
Eyes -

locate Machine gun by
sound, quickly try to
have a known position of fire

a shot on our side, then the
Enemy shot recorded on a hillside
hand machine gives positions -

projectiles should be provided
with a hole for water to
get in, so if they make
a miss, water can
see something they exploding



see if it increases, loudness

also die at X it will ring
but can't guarantee -
also Crystal detector bulbs

Also Crystal Bulbs have inside full of Gas Chamber
also able to handle high temperature

X sent

Reports

- 1 Extension Ladder X
- 2 Vision-Homatropin X
- 3 Smudging periscopes X
- 4 Turbine head on projectile X
- 5 Strategy Smudge beyond firing line X
- 6 Sound range finder X
- 7 Smudge better on salt water X
- 8 Confusion by sea water Sub M guns X
- 9 asking about small boats + Sub M detector system X

boat $2\frac{1}{2}$ mi $\xrightarrow{\text{by}} 2\frac{1}{2}$ mi \rightarrow boat

Pull on net at buoy near boat, wires attached, boats immediately release wrapping net around. This idea could be made continuous or several nets controlled at a distance -

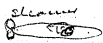
If submarine is charging on top at night a boat 5 or 6 miles away can use sound range finder to get her position & fire. Slightest deviation of any sound wave will show on the 3 records & these can be used as a base line. Can do this with $\overline{\text{Oreodromy}}$ of the evening if $\overline{\text{sun}}$ is in darkness night say 8 to 10 miles away.

Our ships would
 if frequency synchronous
 Motor & send by with
 these frequencies the
 Method for changing
 on ship & land in
 Union - Secret
Communication

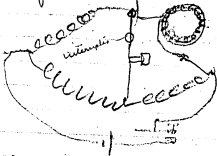
if find if a submarine submerged
 & surface must be running
 can stop for 5 seconds to
 get silence so signals could
 be received



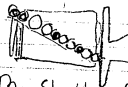
then any outside sound is unsymmetrical
 & works Microphone great traces
 will be balancing



Wind a 1/2 dia iron closed ring
 1 foot long one layer of wire



see how long the waves so on
 opening circuit possibly
 second on phone this will
 actually measure the waves
 Then get a coil which gives
 3 waves per second for
 Submarine & gives for propeller
 use interplex



P1-Sb then Silver & so on
 in line - also only in
 line with 1 cell around

(155)

in induction Coil primary
Industry has shown
amplify by reversing
the Thermo pile circuit
1 way & strengthen other

plate iron 100, ^{or less} + Make Diaphan
of several thickness for
Bell Transmitter to get
good quality - put together
with shellac, dip & dry 1/2
when all alcohol out
put in hydraulic -
Use Rubber rings -



X is piece of paper etc
tapping on top bridge wads to
create more scratch + the
washing with 100g scratch smooth
total scratch = Maors

Malhamites
Shooting a projectile square end
Vertically in water ponds required
for foot depth as compared
with steel -

Micro 6000 Ohms - working
distorts up 10% what is left
coil for primary of secondary
using any Receiver, also if a
reception was say same as Micro
would it be better to dispense
with the coil - If Micro
was made 6000 with still 10%
change of Run + coils change
proportionally would these be less

Stop splash ~~in~~ ~~and~~ ~~range~~ ~~finder~~

What about getting Young 1 1918
Last day will take back old
slight records

Put a cut out on telephone receiver
when talking - hurts ears

Also make pad only over
each telephone on car



Elastic to
pull up
by hair felt
or rubber

Smudge X
Horned Lark X
Schmiedel's Hummer *S. calceola*
Swallow like projectile small X
Auriparus "
" " "
" " "
" " "

High speed & microphone for air sounds
Whistles -

Speaking like ordinary conversations X

Shooting by gun by photograph,

Range finders telescopes with parabolic lenses

Extension for Supermarine's or modified
one for post 11.6.41 birds

Compressed air parachute releasing
Camera for observation birds

Microphone tests

found microphone by hand 5 ft

Little long microphone

On door microphone

Straw in arc, under sea arc

Especially in the

Protection of *Chamaea* wasp

Further out in wasps

Microphone see page 116

50 lb statch Exp. 11.

28 1/2 lbs unwood

21 1/2 lbs chack

Var

10 lbs Rosin

35 alcohol

10 lbs Resinate Mty. as assumed
Equals 7 1/2 lbs hale or Rosin
as its metallic -

clean glass of orange funds

Anyona 100 photos -
20 circuits - May
Photos on CR 10,

Reinmuthoff July 22 1915

4000 lbs dry Coat 27c
Benzol 40c all beyond 1 cent
lb for $\frac{1}{4}$ cent for reduction
below 27c

Van outblank

100 grms Resin 160 16% free Phenol
6 Phenol
1 Para
1 Sumbac
7.8 6/4
156 to 200 10% Mat
1 $\frac{1}{2}$ min Vis
5% Camphor

Blank - 4 wood 3 chals
100 lbs of Mmix 14 lbs 5 oz
Lac & 50 lbs Alcohol
3 $\frac{1}{2}$ alto 1 Lac for Resin
5 alt. 1 Resin

$$\begin{array}{r} 998 \ 99 \\ 26 \ 79 \\ \hline 971 \ 20 \end{array}$$

Pura Pasa lbs in
stock - Feb 1

Notebook Series -- Pocket Notebooks
Notebook, PN-16-11-17

This pocket calendar, which bears the printed notation "Diary for Balance of Year 1916" on the front cover, was acquired by Edison on November 16, 1916, at the 148th annual banquet of the Chamber of Commerce of the State of New York. Two pages were subsequently used for notes on chemical experiments.

PN-(16-11-17) E-1710

Friday November 17 1916

Solvent for organic not used H₂O
shake in separating funnel after
chilling out Benzyl Carbon
Tetraethyl amylal Turpentine
Caustic oil Turpentine
gasoline Reagent Benzoforn
Acetone amylal the various
liquid organic or should
be used in the order given

Saturday November 18 1916

Powerful solution at the double
Phenol

also to clean use acetone
potassium hydroxide solution
sodium hydroxide
Sulfur Ba Sulfate Phenol
resin powder, P

Sunday November 19 1916

My albumen, Hair,
Sulphurum quæ, Spongia-
gum arabicæ, Charcoal,
Cellulosa,

My Bromine, Lard

Monday November 20 1916

Bad with Lassar
Reduced by Lassar

Tuesday November 21 1916

Wednesday November 22 1916

Notebook Series -- Pocket Notebooks
Notebook, PN-16-02-15

The one dated entry in this pocket notebook is from February 1917. The book was used by Edison, probably during the period February-April 1917, for notes pertaining primarily to war-related experiments. Included are entries relating to smokescreens that might enable Allied ships to conceal themselves from enemy submarines, as well as other camouflaging devices. Also included are experiments on sound detection devices and other means of locating submarines. There are also references to Edison's work on a "hydrogen detector" that would indicate the presence of dangerous gas in submarines. In addition, there are comments on torpedoes and other armaments, range finders, and the use of mirrors to blind machine gun operators. There are some notes on disc record production and on continuing efforts to cut down on the number of defects in the records. A few entries appear to be transcriptions of entries from PN-16-11-15.2. Among the employees who assisted Edison in his wartime research were Absalom M. Kennedy, William H. Knierim, and Benjamin Liebowitz. Employees mentioned in connection with disc records include William W. Dinwiddie and George Werner. The flyleaf is inscribed "Started Feby 15." The pages are unnumbered. Approximately 150 pages have been used.

PN-(16)-02-15

#2996

E-1697

Submersibles

Important

Started Friday 15

Small ships to fill in gaps to
make continuous sky line



~~X~~ ~~small boats~~

also ~~4 mi~~

X 3 or 4 miles further away
form a smoke screen no sky
line - when wind favorable



~~Evening~~

~~Ships painted black
it would be unpassable
to see, our ships even
at short range~~

Japan -

4 small Warhead airflask after body
& tail -

Warflask length 144" Weight 1019 lbs

air pressure - 2250 psi approx

Cechn Pipe 23185 lbs

also contains 32 pints alcohol & 53 pints
water & 10 pints lubricating oil

Over all length of pipe 252' incl

21" dia - 82 ft diameter 24 knots

Label 12.4 as a yard of pipe

Air is heated by the explosion in a
Combustion chamber with water sprayed
in at the same time generating
steam & lowering the temperature
the amount of gas.

Warhead contains 220 lbs wet granulation

Try a smoke screen (white)
which absorbs all light but a
special ray from powerful arc
beams. We can see them see
Enemy & vice versa. They can't see
us - Could have it go from our ship

Each ship lets off at atom a
Smoke screen if wind is favorable
so Enemy can't work range finder

Shoot up vertically by compressed
gas a Camera & Photo. tube device
for recording Camera to get
information could cover 500 ft
long

Projectiles to fire 15 miles or
drop Carbide Phosphorus phosphorus
Carbide Puffer *mt*

~~Spectroscopic surveillance~~

Bombs from flag ship nights
up in air mile high -
disperse mustard or dets +
dishes by sound

~~Smoke ball for direction of wind
at top of curv of ball~~

~~Draw over down smoke away from
Enemy so can see them
from 25000 ft away from
the gun or suck it in -~~

~~Second nets forming a barrier
for fleet at night
Reel up days.~~

~~Project act maximum beam of
St. Paulin light etc below to sub decks
through heavy hatches~~

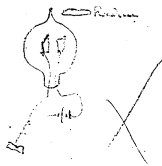
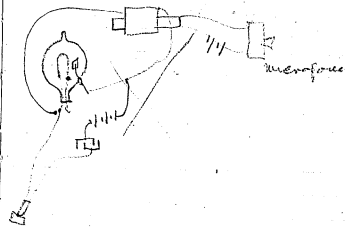
~~How deep down can a 16 CP + 6000
most powerful nitrogen filled lamp
several hundred CP's a cand
try off night ship, also see Sub M~~

~~Anchored $\frac{1}{2}$ mile from 25 miles
out system with shore
concentration~~

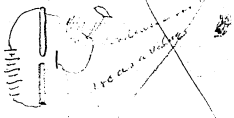
~~At night have gun + range finder
ready shoot 3 mg rockets one after
the other to give time to get range
+ if see any ship, fire, do this
all accounts horizon for Subm
also -~~

Provide light protection at eye
 piece of range under goggles
 for man so if he takes goggles
 off while the light from range
 under shield his eyes
 also extend it to diminish
 unnecessary sky line light

In Blackboard at distance
 with object in room over
 with def ~~cut~~ depth of
 shade but open eye man
 against goggles man also
 both when looking thru
 long tube to cut out
 unnecessary arcs



Speak to Meadell ~~about~~ getting Kumpert
 or Martin to locate about Edison
 valve



E2 has 270 000 lbs on steel

With 100 ft mast can see horizon 17.14
 miles - if 84 ft mast can see 21.34
 miles - less haze, etc. distance of fog
 & better angle to see trees

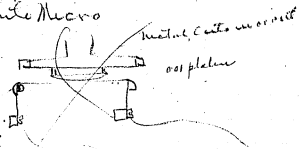
Aeroplane propeller, spring 1 3/4 cords
 27" long holds up 80 lbs (12" gun
 propeller) at Vel of 200 ft/sec

Shielding tube, resonator,
 for clamp hundreds of picogramella
 to check

Diesel - Metals reduced by hydrogen
 Hammered in H or N to imparts
 Do plating whole of cylinder
 on piston in way casting of shells
 & taken out frequently & polished
 have out several times or 2 days sec of
 zinc plate

Diesel, all hammered charcoal
 iron, big file, (10) springs & copper
 to diminish strain,
 As cushioning saddle atop every
 engine piston & crank to have
 cushioned bearing to 100000 an
 or glycerine or both

Absolute Micro



also
 several in series



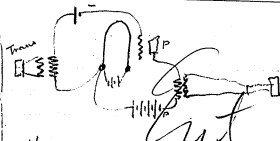
Eagle Rock ~~160~~ 853

Great Clarke Ordnance
" McWhorter ~~160~~ submarines

Newton Ordnance Gunner Correlates
allusion to ~~160~~ of ~~160~~.

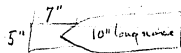
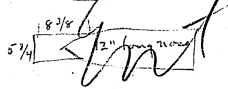
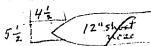
Blue chalk phone with a
one wind ~~160~~ vector,

Pressure in 14" ~~160~~ 17 tons
to each ~~160~~ 26 "
pressure at ~~160~~ 7 tons



This is correct from Mathes.

Wind Res of 14" ship 2400 sec
3030 lbs this ~~160~~ shell 70 ft
per sec



For absorbing Explosives use
 Use Mergal for CO₂ Mining Nitroated
 Benzoin Hydron, Nitrogl¹ & P. line
 (unhydrolyzed)

Dr Chas S Hastings 248 Pradley
 St New Haven, Expert Lens
 Mathematician, ~~But~~ Means
 Enac Expert.

Conzelli Calson & Kavin PDS in ~~concrete~~
 Scatter Conzelli's spray cement
 Mist, Tar

* Jacks with sharp points
 Scatter on retreat, we have 1/2
 Enucle steel on our shoes.



Rolls back
 to right.

Rolls back so points

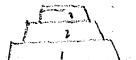
Round bag of sand to roll forward
 near on ball



Chapwell shell covering section 12
 Scatter definite size pieces -

Muddy roads, dense trucking mass
 which adds water + cement + mass
 advancing all the time, trucks
 supply cement do 1/2 the road.
 24 hours will act - 1 ft thick

Dense road making sufficient
 width for heavy artillery.
 Trains of ice will blow one follows
 the other + trucks accept playing
 stones + cement,
 go anywhere over fields etc
 for bridges knock down
 stations



also the primary species of cell
 small knobs

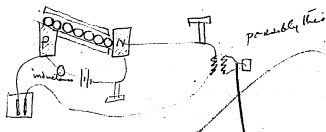
Net system for which work
out a bomb which
travels along net till it
reaches deep & explodes
on contact.

Roll of Brandmaugh's 15° about
in them. can sometimes 20°
Roll for conceptually 14
14 to 15 sec.

A Pound of John Hopkins
Cal Photo, regarding ultra
violet screens -

Machine you operate
three days in Egypt
Meyd of Messors

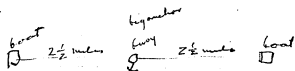
Perhaps our mixed 14° projectile
should have a slight lead when
made active just before use
if mixed water goes in & it
blows up a big lot of water



Carbon balls when wave from phone
come increase or decrease Res
& they change by getting to us
added - great variety experiments
possible. Use balls with silver
etc like to experiment - 18. + 5b
& a silver ball between each
pair - action of wave maker
Thermis + control local balls

Reports:

- 1 Extension cables
- 2 Vision through binoculars
- 3 Acoustical microscope
- 4 Turbohead periscope
- 5 Strategy of snudge behind firing line
- 6 Sound ranging fundamentals
- 7 Snudge better on salt sea water
- 8 Comparison of submerging guns
- 9 Asking in re small boats, vessel M detection



pull on net at buoy near boat
Micro-allocation, boats immediately
start wrapping net around. This
idea can be made automatic
or several nets controlled at a
distance -

If depth is changing on top
at night or a boat 5 or 6 miles
away can use sound range finder
get her position a fine, slight
deviation of the shape of the
vast number of sound waves
recorded will give a base line
to get eliminated - Can do this
with big battles with direct angle
& front firing vessels can't
see them

Secret wireless no code
 Use 4 wave lengths, used
 10 words phrase predetermined
 Change again to another
 4 so on - could use
 a machine & send 1 word
 Each wave length.

Cancel out local sound of
 a boat so distant
 signals only are heard



Waves entering from the local
 are of equal strength but
 opposed on each side of
 the boat X is out balance
 being unappreciable.

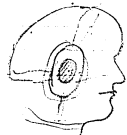
⊗ X

In our disc sent piece paper on lines
 to scrape along tops of bridge
 wall to make more scratches
 see if it works up to lab scratch

Why not act June 1 1918 last day
 will take back old technique
 records for file -

Get Cut out on ship telephone
 when talking Kirtley & his

Make pad thus

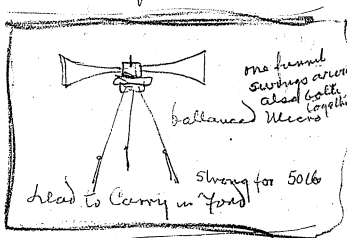


telephone
 Receiver of set on
 case holder -

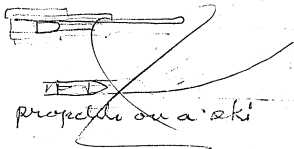


Can be got hollow
by plating hairs
etc then dial out
cut -

Use wire + cut of so length is same as
diameter + square



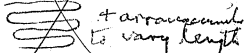
Range finder + pattern on
Navasink nightlands telephon
connections for security
14 1/2 lb. -



~~Projectile on a ski~~

~~Ask Mathematizes
What happens the gas gets
from the alcohol in air
in Torpedos & also
Jugon or other things
beside alcohol -
ditto than compressed
air -~~

long tube resonates
3 1/2 to 150 ft long
ask Mathematizes -



+ arrangement
to vary length
Ask Puzosman if tuning
to exact + sharp on wireless

Ask Phippsman if phone
shouldnt have high
Resistance

Haltzer Cobalt film
make up to 2000
ohm Bill Beckman

Ask Phippsman to
give Dragan how to
Req up parts with
wires 6 to 10 miles

Arizona 100 photos
20 ckt. man shows on
1 ckt to W

4#

Pfund, John Hopkins Balto

Nose can know that lets only ultra
Violet thru but can be made
weakened by combination of 2
or more screens

→ Nothing better for UViolet than
are between 2 iron rods
Hg Vapor very good

Following are fairly transparent
to UV rays

1st Dense Cobalt blue glass one
of colicoid sides is coated
with gelatin impregnated with
Nitrocellulose triphosphate

2nd Plate of polished quartz
heavily silvered, silver is
almost entirely transparent to
waves length 3100 Å V

3rd A Polished Crystal of
Nickel Ammonium Sulfate

4th A Security bulb filled with
Bromine Vapor

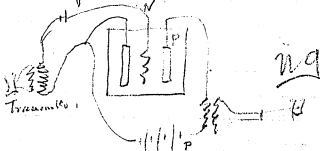
5 - 1st Layer of Solution of
Nickel Ammonium Sulfate
& CeSO_4



Shield for men to adv. use.
with, get best material +
arrangement + lightest -
Space carry as automatic
descent at risk

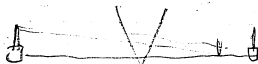
Spot Machine guns by
Sound finder, draw fire by
illumination -

Amplifier using Aluminum
Rectifier -

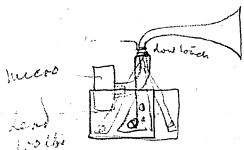


Change electrodes & allow to get it

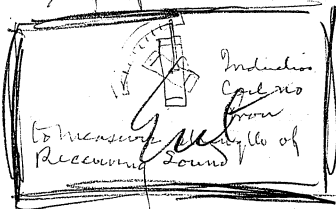
Special 21 gun with water
resisting long range, worked like
Maxim works machine gun
high Vel by bigger chamber
perhaps 1/2 gun by weight -
this for hilltop sub machine



Want ~~restoration~~ to
determine ~~scale~~ in scale
to ~~ensure~~ all C.P.



Don't touch
 To swing around to measure in
 box. Use difference



fire 2000 yards Mg
 bombs - Then if found
 far away or close

have bombs dip scamp's
 tall ^{our aim} fire, so the area is
 such they can't see us
 but we see them & so
 continue to work
 receive forest of fire -
 Best of rocket.

ascertain if should fire
 low or send high - get one
 for 14 gun go up 2 miles
 with muffs or silver
 see how far these Mg
 Rockets will give
 a photo -

~~Fry funnel in tank
only after midnight~~

Turn plate of brass
& polish very smooth
buff than Vannew
Red Van Bake & grind
on diamond moulds



Micro on work plate metal, use hard die grinding
& plate then cut up in small
bits in hot, use the
colony die -

Can differential bitross on
steam & a die in submerged by
slowness of propeller.

Get suds of oil that
cannot be blown off
or washed off by gas line -

Stop bird one received
with letter -

Heets mkr about useless
also funnel in water

Relays men mailed to 11,815,000
said over million dollars of patronage

Bore out cores to feed in
powder for undersea light -
feed in cones -

Don't try asphalt
in other oils insol
in gasoline or water
Also set up table to
see how heat in time
also squirt gasoline
on & also 80 lbs
Compressed air -

Put the College Graduate
man on Core's Carbon
& feeding in Chemical
& Metals -

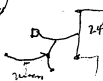
Ask the ~~investigations~~ of
Lennel ~~should~~ of
D. ~~...~~ on ~~...~~

~~Boochum~~ Come over &
see ~~...~~ 2nd ~~...~~

Good range for Torpedo
work is 500 yards or less
but gunners ~~...~~ (62 skilled)
enough to strike sub M at
500 yards

Get right wireless set for 2 tons

See friend Charles when he
comes over, about the
point of ~~...~~ on ~~...~~
14th ~~...~~

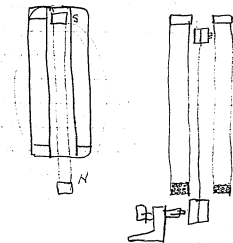


like ~~...~~
but ~~...~~
amplifier

5 to 7 waves from the 2 screws
 (2) 2 screws given 5 to 7 waves
 second - 8 Reads actuated
 by. Microphonic waves, all tuned
 from 5 to 7 waves - limited
 amplitude, strike a Carbon point
 + Bell -

from Sandy Hook dock to
 Atlantic Highlands R.F.
 dock 3 1/2 miles to
 to Crooked Island light 3 miles
 from island to light to
 Scotland light 5 miles
 down town island light to
 down town island 2 1/2 miles
 Covey island long pier to
 down town island 1/2 miles

found out name of metal which
 has no expansion by heat used
 for diaphragm next to Carbon
 balls -



The 5 to 7 Persec read with its own
 feed + coil in Microphone chit.

Tune with hexaplexon 4 1/2 mile
 2266 - 12 Reads tuned in maximum
 of 1/2 between 5 to 7 + another
 back for 5 @ 10 miles hours feed
 each

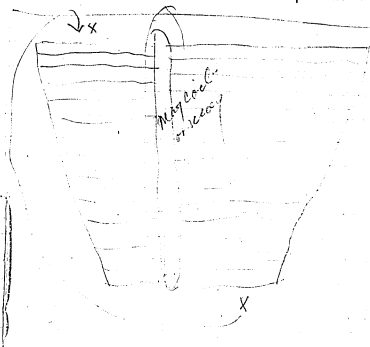
~~Ask Board of the~~
~~light house over at light house~~
~~the head quarters of the~~

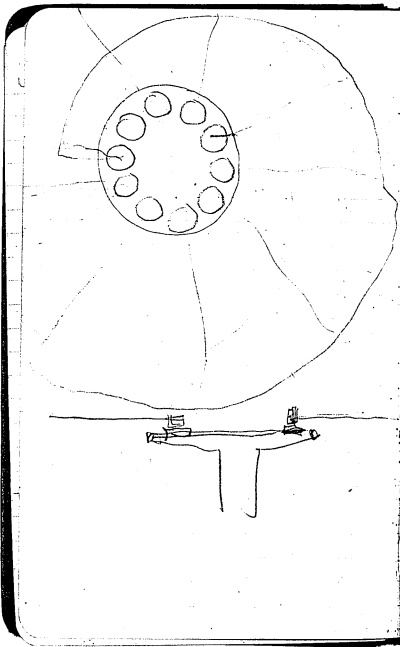
Ask Board to find out if
the Ambrose & Hancock
light ships could accommodate
2 of my men for 2 or 3
days for experiments -
I have permission to
make experiments but want to
know if coin/clear & eat
there

In making sky line to
make our ship; possible have
rolls of cloth very thick walls
& cover over with lead in bottles.

length of 2 second Pendulum 39.12

Pendulum making 1 complete Vb	
per Sec over 4 days	9.78 inches
3 per sec	1.087 "
2.75 per sec	1.29 "
3.25	1.92 "





with break wheel shunt it
with adjustable almost to
central strength

Soak the Dry blank mix
in the varnish then squeeze
Excess varnish out of
Make blanks alone
by no spinning back &
scratch discs to fibres
Soak fibres alone -

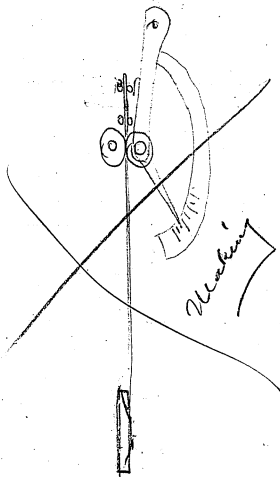
Ask Leighton
heads of both
American & Scotland
light ships have
wireless -

also if they had 4 bells
differing in the night
locate partnership

on Merchant ship on
gun view black smoke
1/2 mile each way,
towards each other

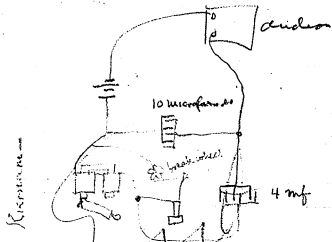
Werner take a 12" fan
Run at 800 Rev Min - 3 blades
Record on Scotch Machine
+ Run phone very close
so the long vibrations
from it will shorten as we
can see them - phone must
run 40 Rev to get 1/4"

Waves,
It can't run that slow nor up
worm a make it run as low
as 5 Rev min - Edison X



When see sub fire smoke
balls at her all around
so she can't see
hard to hear -

Charles
S. S. S.



Resonance, $2\frac{1}{2}$ per sec up to 100

Aeroplanes 100 miles above
 make at least 1500

Rev per minute -
 Use 16 8 4 2 1
 - 8 is advisable 4 1/2 is as double &
 12-300 sec - 8 200 sec 150 sec
 Diameter screws propeller
 our largest 260mm
 "Steel Dia 55"
 "Dish 45 3 blades"

Range finders stay on light
 find out if Aeroplane Engines
 Say 8 cylinders is explosion
 such as they fall in
 Continuation sequence or are they
 slightly irregular -

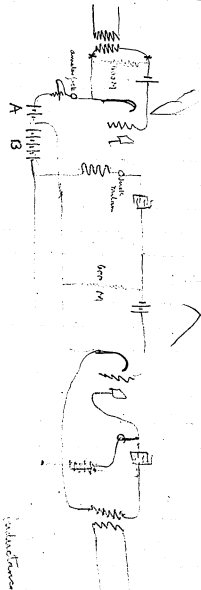
Device for determining speed of
 Avium's ship absolutely
 so complete for speed ahead
 of time

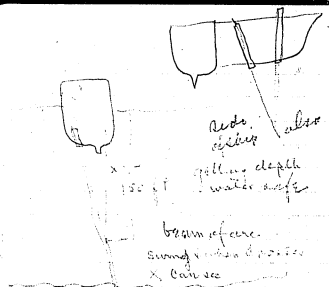
Reduce $\frac{1}{2}$ by ft. they pass Nitrogen
 to combine with the ~~oxygen~~
 to form ammonia -
 this is possible 1000000
 that amount of Nitro gives up

Write to ~~get~~ of Industrial
 & Engineering Chemistry
 about ~~the~~ Experiment

Chetan put up plain
 circuit all of current
 then value is calculated
 a meter, or static,
 put in in from ckt &
 bring magnet near
 in the loop & pen &
 close ckt

Construction of 2 conductors
 A is @ 12 volts
 B is 150 volts -





Clarke - 3 sea ~~log~~ 4 drag
 Naval Submarine 1300 M Val
 3010 Yonda sea

How does position finder work
 Submarine in a bay could
 get out again without rising

Jimmy Record
 435 V. Br. ~~at~~ record

In sea blue can see dimly 150 ft down
 bright day - could see 200 ft down
 V. clear water, on cloudy day can
 see dimly 50 to 60 ft.

Wanted device to a submarine
 to locate another without
 without rising.

Euphor glass spectacles
 to absorb Ultra + Violet part
 of the blue - both see seawater

^{the way man}
 A. E. Lewis Calcutt proposed
 with contracted air ~~light~~
 to make maximum visibility
 simple back to be ~~the~~
 by air gun color fire can
 be relayed &

ESD

get best ~~traced~~ Record
Worms ~~in~~ ~~scratches~~
get the rate -

~~Enough~~ ~~Spunt~~ show scratch ~~cross~~
see start of disc 250 to 500 sec
will try a ~~traced~~ record & get all
the ~~Winters~~ ~~on~~ ~~cycles~~
knife 80 rev ~~also~~ try Lyllike 40

Keep watch on wood ~~keep~~ for
Dises -

Maxwell ~~keep~~ about
a ~~week~~ ~~containing~~ ~~new~~
records 1/2 or 2
against mechanical
defects,

Krierim & Leifwily, fig out
especially ~~last~~ ~~cycles~~
Premises of 2nd try for
input a ~~different~~ ~~7~~ ~~BECC~~
~~success~~ ~~of~~
Microphone 3500 to
5000 ohms -

White Milan Turnip
Oval ng -

Cabbage - large to fairly
round.

Rape Dwarf Essex
1/16 only fairly round

Poppy - 1/32 poor -

Celosia 1/32 oval
ng

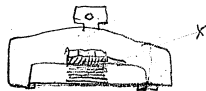
Black Mustang
1/16 oval sq

White Crown 1/2 oval
sq -

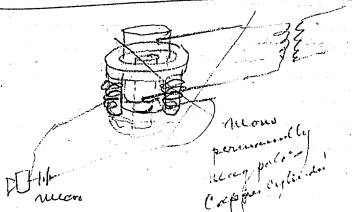


Cent distance be determined for
A better by using B,

Why not use a Rothon prism for
determining small angles better
in the range of question 1.

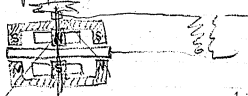


Coater Teleph. X is hard diode with
folded Schrod waves very electrostatic
Capacity -



Amplifier

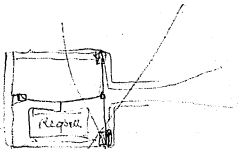
Known figure out



off of amplifier circuit
through the center

Monday, July 2. They 3 balls
Tandem instead of 8+10 as now
32 holes 3 balls ~~and~~

They needs qualified over
+ need work



Good need for Baller or Sandy
Hacker

Storage battery built like a Condenser
003 - 1000 ft. mile, for engine iron poles,
prop. slat. for lamp

Five bright lights 4 @ 6" gun 10 miles
Silence, range find + sub. at,

Find out for the old name
of Pettal. ~~the~~ ~~at~~ ~~at~~ ~~at~~

Get that out ~~out~~ for phone on
ships new ~~systems~~ -

Be quiet in Enemy
Wireless ~~but~~ not ours

Send photo of ~~the~~ ~~the~~ ~~the~~
for pass ~~to~~ ~~to~~ ~~to~~

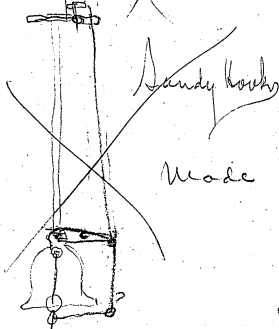
Have new ~~new~~ ~~new~~ ~~new~~ on
displacement + power +
speed of 30 ~~ft~~ ~~ft~~ ~~ft~~ ~~ft~~ ~~ft~~ ~~ft~~

Siphon is important, never get acid
 under in bottles, top of ground water from
 spatter on Messrs. Station below
 water line, or a fountain way that
 can't be destroyed.
 Jan 4/19 p 90. Morse Tutors

Morse Tutors go up to
 Crystal Lake, like to see if you
 out if so get string &
 take up tin to see &
 test.

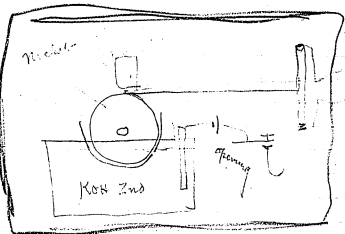
Get up system of Tummy
 Hooks + Bowdler Keys
 its to use the
 iron of ship to communicate
 with the messengers
 with the telegraph.

Make a striking bell
 for testing under water



Perhaps some of the
 noise is accident
 due to battery. Take a
 current out of battery
 see if it diminishes the
 condenser around it

also about on Earth call



Rotated out with good lead
 Anode: Zinc disk

Chalk cylinders only
 use 3% base, old book
 but only 20% KOH first

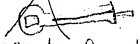
~~Organic acid Co.
 very expensive, plus 10%
 lot - also by temperature
 D. da or K + 10% KOH
 can work on both W & Zn~~
 Carb Simons 200 series
 was adopted

So Cylinder used to avoid pollution
 also 3/8 in gamma lead wire
 to stand in water Res in line
 but work on stand because
 current at this point is used
 where large ~~is~~
 point should be small as
 possible

So Carb Zn of water only
 is 1/2 bond to ~~W & Zn~~ NO₂

~~4~~ Fred Bell ~~buy~~ ~~of~~ ~~components~~
 Water to mix SrCO₃
 think that determine the
 porosity -

See the ~~pens~~ are made
 like all pens



These Mucker Diagram

Dry Carb Lithia

2 min cy 40 kmpa 80 Rev tracked scale
about 22 waves at 80 on cylinder

Area Micro 95/1000

this makes 2136 waves second

Micro goes as low as 1000 -
by 1800 would like most.

	A	B
150-	3' 8.25"	7' 4.5"
200	2' 9"	5' 6"
250	2' 2.4"	4' 4.8"
300	1' 10"	3' 8"
350	1' 6.84"	3' 1.68"
400	1' 4.5"	2' 9"
450	1' 2.66"	2' 5.32"
500	1' 1.2"	2' 2.4"
550	1' 0"	2' 0"
600	11"	1' 10"

Get some scallie pencils dry
& make records - 4 3 1

3 4 1 2 5 1

Survey completion of 2022 at about
for Splach micro on was most,

Get Visual telegraph from respondent
parts coast a ship to Central
point.

Regulating systems for
 branch lighting when
 lighting California cones
 delayed. Monitor
 Visual Conversions Monitor
 Use Edith with Hammer
 + large area board
 Signal sockets,
 High rate hand pump air
 system + accessories with
 fork couple nuts back

Detailed Range finder to show
 location of drop gears -
 Quick - *W*

0.27 balls of Microfine 10.5 μ
 10 of them 1.3 mil μ \pm 1.4
 10 " 1.5 " " \pm 1.4
W for 10 balls

less than a $1/4$ of a mil each ball

look up ~~Big~~ *Big* ~~break~~ *break*
 Wood Pulley Machine

~~Milner~~

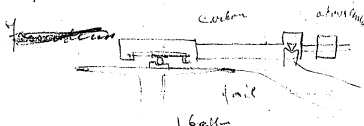
~~Use thimble (slip on highly polished
 6 disc - $\frac{1}{2}$ in. or more)~~

~~Submer~~

~~fine bolts loaded
 jump block~~

~~100~~

1/2 dia dia 301-cur 4/10/2 003



Person's circulation, when at 6
5 miles heard circulation
Reed coils, by means of force & oscillate
little grounded cleaner
When the force
later not sensitive as not built
for descending earth
Person's telephone could
his circulation, success
for 1/2 mile away

Walls of submarine perfectly
apparent in all but heaviest beams
when submarine 50 ft deep
even when at depth, head up
or in line with the tunnel

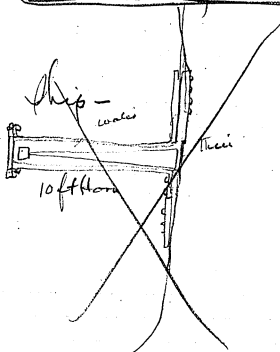
oil globules continually come up

SubM seen 150 ft deep at Gibraltar
by aeroplane; aeroplane only
500 ft high can see big black
belt of steam as proposed at
Gibraltar

One man says high ring of the
Communicator of sub, can be
heard 15 miles. Extreme
Cases smaller than 1
miles.

150 lbs TNT gives at 10 ft
260 lbs pressure per sq. in
on a submarine submarine
stand 150 lbs per sq. inch

Small Torpedo 5' long 6" dia
 Speed 30 knots range 3 to 4000
 yards 15 lbs TNT working
 fixed depth 5 to 40 ft. variable
 2 ft. Expelled by ~~air~~
 Several gun heads set ~~at~~
 Secret, low being developed



To make splash/range finder
 success must be able at a
 distance of 100 ft to see 2
 black lines .031 inches apart
 angle 5.3 sec also try several
 men on 1020 about
 good way to test eyes & telescope

Smith - Board of Hallands
 that gun later sent
 that of ~~board~~

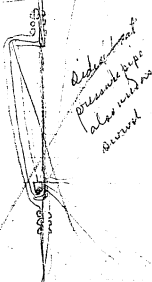
Bay Couple small music
 boxes for Whelan's table -
 Crystal Lake of Tank put music
 box in small box also Magnetophon
 spindle & flower music
 Max box lay along set other
 in ~~exp~~ get it

Ask Ward if ~~X~~ has an outline
of the rec ~~X~~ of the case

Home in Crystal Lake - Knock on
✓ Knock at window see if get it
if so go to Anthony further along

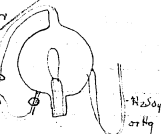
✓ Ernie's Hall and is gathering
✓ What you saw in New
ground - My pads under
✓ Sam Horn

One on each side
above



Hydrogen Detection

also 2 tests ~~conducted~~
others not changed
both off-acting gauge pump
Reading def of tank



Platinum wire with flat black -
see lowest temp -
or fine copper AgO slipped over wire etc

Miller to put aside in Hayes room 12
Room records old lampblack Varn + 12
new China Varnish - charts or Duplicate
in his room - Number them in book +
put strong tags on -
Duplicate with Reg Sh. K. H. H. ink
with Reg Varn + China Varnish -

Ask Clarke or other Ordnance
officer about 3" diam 1 inch 6" 9"
rod for prop. by internally loaded
TNT - powder for Dec 14
Ask Clarke if he thinks convenient to recall glass in R. Times

Divers longed steered
by intense sound waves
Under water, "Funder"

Ask hydrophone man

2nd try may have an angled
sound reflecting it from being
sunk away -

2nd velocity of $\rho \times \text{speed}$

3rd says largest being

4 Whistling away

5 another came and away from

6. reflects smallest cat or whistles



will hold a group of given
size

7. what size wire used
how long last 2. they
have leaders?

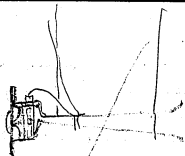
Do keep as up as soon
angle to another is
claim as rapid used

Resistance due to inductance
square of the turns, magnetic
circuit being the same

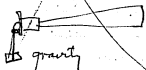
1 Turn - 1 ohm (John P. Resnick's 2nd)
10 " 10 " 100 "
+ 20 on

 This kind of coil
inefficient as it takes
lot of current to build
up lines  for more
efficient -

Best is to have largest
cross section of iron + silver
iron + smallest circle
possible to get
wire on it the very
little current to the case
out the lines -



Rubber scoured piston to compensate for
on Diagram for water pressure



Try own 15" ~~scope~~ telescope
on these // beams both viewing
with only 1/2 inch at big end
like Jerry had on his telescope
to get better definition -

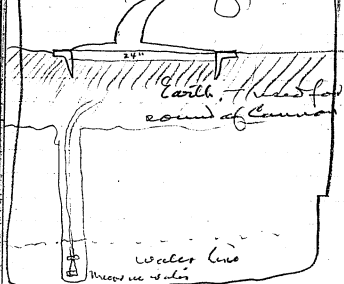
Suggest our periscopes be changed
to be easily come disassembled apart
& a design very difficult to make
requiring special machinery

AMS Lion brass matted on top where
Splashman - if your legs in no
way hampers center of account
possibly 1/2 of value
Shatter heavy may require absolutely
free use hands feet & eyes & EOW
gas masks supplied men in tunnels -
would inconspicuous here in her
duties Considerably
See I should account it as it may
be more effective than masks
now in use

Try pressed Rayonite off head
on U. chin to help

Have M. & Shell dip tests
on brass lantern glasses
with K. H.

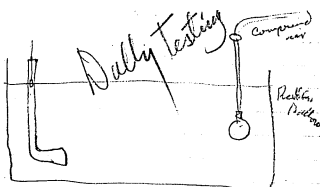
Round Rubber Tubes show



The Earth water used to convey
the sound -

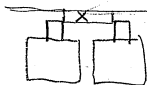
Put a Copper Mould on
show & Reproduce
or see if turned part
is smooth if not
buff - work till smooth

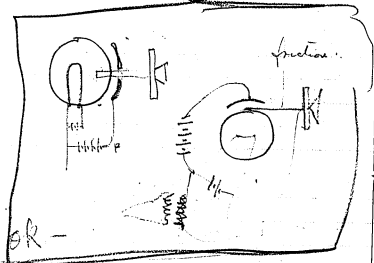
ditto Mould holder -



See if sudden inflation of
Rubber gives wave motion to
the float,

make X thicker
 $\frac{1}{32}$ of 16





Edward Eible - Bud D says
 who got under -
 Co I Army Center St
 Office Manager of General
 Resin & Wax plant
 Thirats

W E Fredericks Bookkeeper
 Musical phone Div with
 Hartner - who for Maxwell

~~Aerogram detector
 Make sliding tube
 Resonator 200 to
 300 sec diaphragm
 Rather thick use foam
 + diaphragm to
 amplifier~~

Inudge Rest

50 cc Each Straw oil
 + Residue from distilling
 Solvent Naphtha

200 - 33"
 300 22"

Vib of sound 11 determinat

332	332.4	Special determinations Vel of sound in air Very different on account effects of
333	332.44	
334	331.6	
330	332.4	
332	330.7	

The wind + variation in level
 Condition of dryness + temperature +
 Average of above 1088 ft
 record at O. Conygrade -

Resonant tube for 200 vib sec

16.32 inches closed at
 one end
 for 300 vib sec 10.88
 inches -

If closed at both ends ^{open}
 must be twice as long
 as above.

Measuring boxes on Jackson
 Ckls

On Box	100% of the current		
2	77	44	.8%
4	62.5	46	.65
6	50	48	.52
8	41.5	50	.41
10	33	52	.34
12	27	54	.27
14	22	56	.21
16	17	58	.16
18	14	60	.14
20	11		
22	9		
24	7.5		
26	6		
28	4.75		
30	3.75		

714 times repeated

32	2.9
34	2.4
36	1.9
38	1.5
40	1.25
42	1%

Capt J.R. Robinson
Newport - Longbeach
Nest

Soet in eye front of
pupul to cut off ~~of~~

Signalling with 1000
with Delytin in concup
Cone - ~~in~~ ~~out~~
want ~~to~~ ~~look~~
~~quicker~~ about the
Red-or use shutters

For heavy - Melvins
try very finely divided ~~to~~ ~~see~~ ~~in~~
pale nitrogen ~~to~~ ~~see~~ ~~in~~ ~~at~~ ~~in~~
and then ~~to~~ ~~see~~ ~~in~~ ~~from~~
rows + ~~to~~ ~~see~~ ~~in~~ ~~to~~ ~~see~~ ~~in~~ ~~to~~ ~~see~~ ~~in~~

Start Walter Miller Experiment on
tracking records to get
less scratch or softer scratch

Print a record with 1/4 inch
plate glass & see how smooth it
is - ~~signed~~ ~~let~~ ~~to~~ ~~a~~
backing plate

Put a diaphragm on both ends of the
sliding tube play piano & also
Vialing into a Bell phone
the Bell phone with magnet on
1 end of tube act it going
in to other end

Manuscript to write to the Elec
paper unless its in many publications
& notice that a description of apparatus
called the Fleming Valve -
Permit me to state that this
Valve was discovered by Edison
& exhibited at the Phila Elec
Exp in 1882 & published
in all scientific literatures
at the time where it was
known as the Edison
Effect. Fleming however
was the first to apply
the Edison Valve to
Wireless telegraphy -
~~to transmit signals by~~
~~conduction~~

Must



4 terminal joint
leads

Send two liquids both to be
placed in six glass
shell the liquids on right
by explosion form a cloud
white or black that remain
long in atmosphere like
HCl & NH₃

Dry discs of Sulphate
Pulp board ~~board~~
Soak with L₂ then
press, then Vacuum

Danichs,

I want to call your attention to the fact that Reginald A. Fessenden an experimenter well known among the Wireless people has an instrument called an Oscillator which in my opinion could be applied to a torpedo whereby it could be steered after it left the boat and would be more practical than that devised by Thomson. That it would be difficult for a submarine to escape its effect, also that Fessenden has the most expensive in radio ^{signal} ^{in the world} ^{valuable} ^{now} ^{the government could count on it} Put some of Chino Vermorel's blanks in 5000 & 30000 Heim then send 4 Copy for S. S. 1000

Make 12 Double crunched
Chino Ver - 1 set not baked

between Coals, the other
set baked

Resinate Mg when it gets the sudden
solid high MP starts Resin must
have changed its nature
Get on some water HCl,
seems Mg & see what it
looks like

Find MP of Res. at 1200 of way
above steam at 1200 lbs
pressure - Make records
with lots of Res Mg as it
well cover facts all good

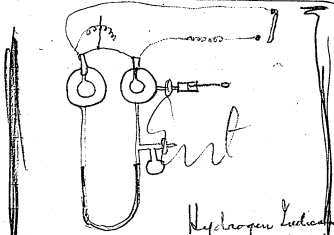
Discontinue to consolidate the
Copper of wires - press on lead
at highest possible pressure
2500 @ 3000 lbs -

Resinate Mag MP 257 fahs
Semi-solvent here, but this was
the Mag put into Melted Resin
& food Resinate had softens 280°f

- Try 1 flock
6 Chalk
2 Resinate head

Resinate would overflow at 55@60
lbs - @ 280° fahs - found that it
runs at 337 which is 100 lbs
pressure
Well it dissolves in alcohol & nit
acetic acid - perhaps powder
will do -

Try MP of My Resinate waste
Req way little shells



Dissolved - You should buy higher
density or Copper plating
also if necessary Extra drying
Crystals Microspheres -

And all - see how far away
the Ball success can be put
from where it is lost
in Chalk layers - little Ball
Try with 2 1/2 Microspheres in
cut to stop Chalk Lint
0917

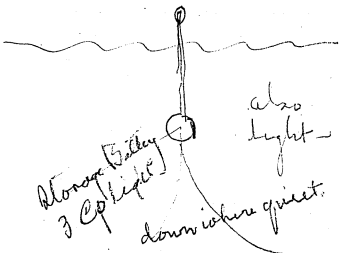
~~We shall try a leaden
cell with islands on
top to keep out -~~

Remove Co Mn or Fe & the
discharge in KCl of
Edison cell will not time
discharge the cell -

No Sulfate absorbs O -
Sulfuric acid & lead sulfide
& absorption of lead sulfate
KCl is not used,

Phone Mr. Whorley
if he can get out
of with a heavy
storm if the
submarine is down.

~~to the usual limit of the
effect of waves is
noticed -~~

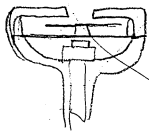


~~As the time ~~is~~ but deep sound
waves~~

also if 4" gun would be
just right for Sub in prospects

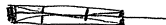


Make phone
with steel comb teeth



Large size say 2 1/2"
Spring steel

Diminished value such loss
out puts better



Rub M perfectly

Try a Revolving Mirror
to see perspective of surrounding
or Vibration to find perspective



Mirror along visible line
just above eye - this
shows make perspective
more visible cutting off
near line

Headcraft low about
Kahn Garage of pencils

90 animals

I have just finished
a long line of experiments
for detecting *Recombinans*
by the use of the

Induction balance
& other ways of determining
the presence of large
masses of iron at a
distance. None of the
methods have any
hope of success
& I have dropped this
line of experimentation
although it seems a
favorite suggestion
of many scientific
persons -

but I am continuing on
more promising lines

Rueven

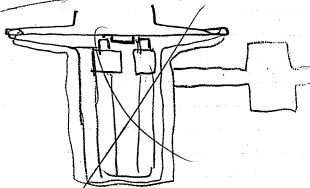


~~Cautious work with
prisms to see how
ultraviolet -~~

~~perhaps fish on a float
beside vessel -
or a porthole near water
line,~~

~~Perhaps with the sea
can be displaced
waves & made distant
sub m~~

~~Kerrison give me the Curvature
of the Earth $\frac{1}{2}$ $1\frac{1}{2}$ 2 $2\frac{1}{2}$
3 $3\frac{1}{2}$ 4 miles - want to
know how high person or vessel
beats see a vessel at the water
line -~~



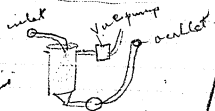
~~find some of the phonograph
phones & use them -
also~~



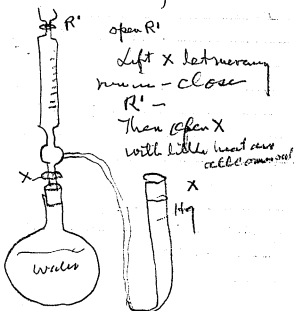
~~Mitchell makes up 2-hand
Lewellen Cells with Bromine
glass -
ditto $\frac{1}{4}$ of Cabell in $\frac{1}{2}$~~

~~pick up apparatus for
Submarine buoy for
distilling water - Mitchell
ditto for obtaining water
out of sea water -
Inevitably buy should
stand 100 lbs pressure
of 300 ft -~~

~~air from
sea water~~



Determining air or O₂ in
sea water quickly



Bring Hg in bottle to level &
read difference -

Hydrogen Indicators

Ag phosphate in dark at ord temp
slowly attracts O₂, increases
gradually by heat at 100°C appears
Ag₂Subphos at 100°C
Ag₂O at ord temp Cuprous sulphide
at 250°C - light don't help

Hydrogen Combines with
sulphur (palladium lined
at 215-350°C) but decomposes
at 310°C cold
Does oxygen??

Yellow Manganese Ox is reduced
by H₂ at 100°C

Manganese Nitride dithio
also reduced O

~~Find out if sect 2 clips in series
see how one affects the other~~

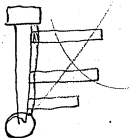
also in circuit past induction
+ circuit with Condenser -
see if works

Try a Bell Microphone
instead of the coars

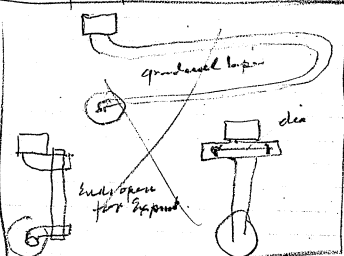
Try Resonator - Chemo & Long
Sulphur Co. 2nd Bn
finely divided -

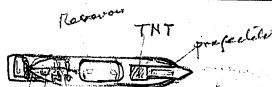
Nickel oxide not hydride

Show



Put lead weights on Center of disc
ditto Center of thread
Put in double dia 003 space
String only on one





Torpedos to be fired from 5" gun

Rubber Engine -

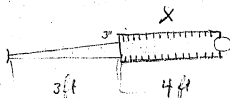
Very close burning powder,
fuses 2 miles - torpedos
goes 800 ft - may use magazine when
no charge blown in water.

~~Ask Lockwood what he
makes out of Johnsons
patent~~

Put $\frac{1}{8}$ hole in end of
Compensator on big
Brass phone



trials here ~~rest of way~~



dia hole in X 3 inches -
partitions 1 inch high 1" apart

feet phone at a distance a
Swivel around Map and Volume
~~also~~ by drawing ear away
also 2 phones 4 ft apart
but at same distance. See if
can hear over with the other
if so keep partition of wires
apart - use trip or make
a tripod -

Also one lined with $1\frac{1}{2}$
Cow hair -

also square box 4" cleats $\frac{1}{8}$ deep 3/4
 $\frac{1}{8}$ wide fine boards - 4 ft long
or sawed in which is better.



$\frac{1}{8}$ board
Cow hair on outside

Wester (over that) ~~also~~ made for
Big telescopes -

Test Duvardis ~~use~~ $4\frac{1}{2}$ " telescope
Comparatively -

Werner - put ~~some~~ outside
with sensitive recorder + see what
air sounds you get.

See what Dally done.

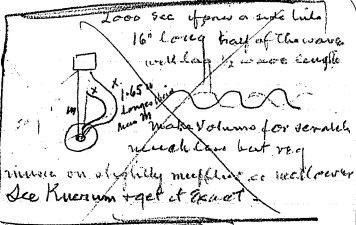
* Put up Big brass plate for Sandy hook

Put Kuerum on second problem

Decide what to do about
Arc light more ~~records~~ test
letters -

If Kuerum ~~finish~~ go on unit

Mason see about prospects -
Range bank - ~~take~~ prospects etc



Wadecraft - ship to J.A. Elnow
Fort Hancock study track by Reg
go out track from NY 10 Bbls of
Straw out get Soil Co + way
weights

Locality ~~study~~ about Range
Sphair ~~finds~~ -

Better take off ~~the~~ hood of
28" tube a box up each
hanger + end to go for
Sandy hook before sending gal
hood off get curv with phone + music box
use turning note

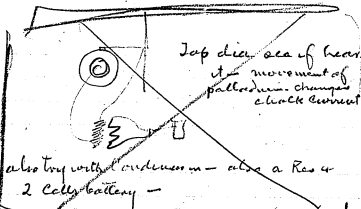
Ask ~~Loeb~~ if a ~~sub~~ process
in a ~~loop~~ with a ~~Al~~ in
if ~~could be~~ ~~detected~~ -

Edward Ring jr joined Navy -
reprint Newport ~~give~~ letters
asking details for ~~Marine~~ ~~boat~~
for work, ~~Memo~~ ~~draft~~ in ~~memory~~

Try all put ~~check~~ ~~them~~ in
hot ~~closed~~ ~~place~~ ~~sponges~~
so gets ~~Saturated~~ ~~atmosphere~~

Mgs wet with water showed
work on it little ~~Sul~~
perhaps try Carb Li or LiCl₂

Find out where all my X14 apparatus
(once made but never tried) ~~showed~~



~~Dot~~, see measuring surfaces
a certain ~~minimum~~ quantity
of straw oil will ~~show~~ show a
film also try ~~mercury~~ ~~silica~~
fluorescent, This with idea
sticking to ~~cead~~

Kennedy ~~showed~~ Sunday

3 → Bell 1500 yards receiver
3

Bring Kennedy's ~~look~~ up to Home

Turn present -
See Noy Central, get permission to
go on Highlands dock. and if
possible move house if not
possible board another on dock
+ get permission -

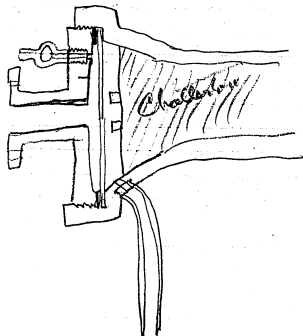
Also have Marshall Pump
go to Moscow and if we can hire
a boat with Cabin, with men to
run it - or 2. possibly if he cant go
let Mason go.



Bill without permit may
battery in concert itself
such an accident

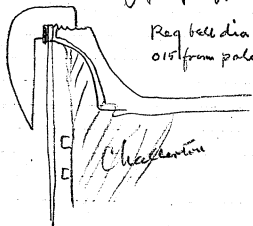
Knower
figure out boat
shape for Rig Boys

N23 Transmitter

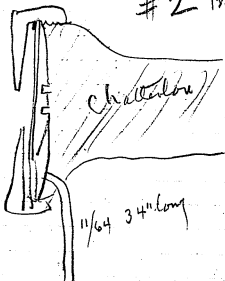


No 1 Transmitter

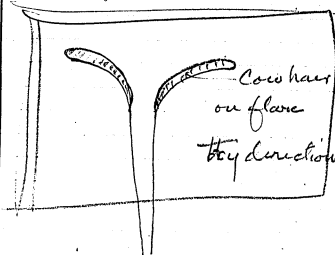
Req bell dia $2\frac{1}{16}$ o.s.
o.s. from poles



2 Transmitter



Tell Kennedy he don't give
nothing of dia in # 3, or 2.
one had $1/32$ dia which I think
is No 3 ~~to a pity details~~
are not recorded.



Atlanta High School Branch

AM - Newark 606 827 930 1144

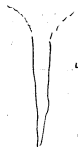
PM - 1215 114 133 338 431 534 616

912

Return

AM. 625 658 725 844 849 1111

PM 201 413 420 509 734 839



get this horn, put phone
on lawn - get tripod
+ string for horn -
Run Curve at def
angles -

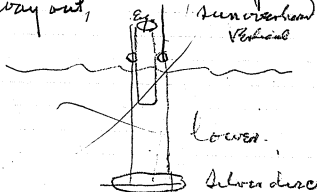
Lostbirth - find out a way
from 0 to 100 - to use ball

Return as Iphoton of woman
to map out straight -



When next Experiment with Ball
Micro use a little induction
to cut off top due to jars

To determine clearance of sea
way out,



Send down to that tubular man
who makes them tubes & ask
if he has any then called tubes
to make above how there is
internal wall -

Making up a funnel

CHS

See if Can rent a small ship
at Highlands see about
power, if not at Highlands
on wheels (cable or Hawsentick
Rovers easily reached by sea
boat. Then for hardware &
supplies,

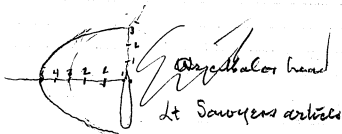
See if 2 anchors can be
used to hold boat from
drifting -

Find out if Can use a reel die that
works by a reverse current very
quick.

With Mirror system ship can
twist 14" in 62 ft length
without disturbing communication
read, writing & rest of day -

Tell Kennedy not to use laps
but use sheet of the remain
& then heat,

In heaviest typhoons in China sea
no wave motion felt by deckman
in 75 ft down below deck
in deep water or 100 ft in
shallow water -



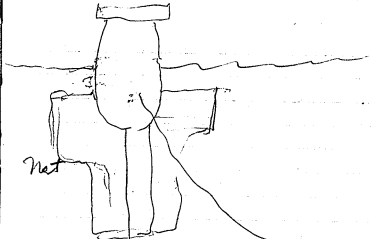
Change the Mangle
for a fresh one to be held
ship -

Talk over putting Concrete
3 inches thick around
Columbus in SCammshoff
& private plant -
also sheet iron on
bottom piece of timbers
of raft -

of Kennedy Education System for
Communitarian to be set at
Barrage - Henry Eckhart

AM Kennedy
Care Charls Lewis
Red Bank N.Y. *Amidst*
Phone 3 Red Bank

Baby = Xubon Galapagos
Baby of Conalmy well
an produce bottle to each
with quib or wire for enclosing on top
& stick with flag



for floating mines -
stop effects Explosion

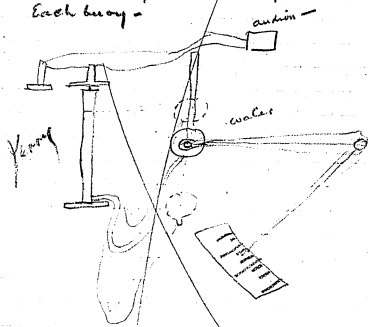
Get triple stage life Evap for us also
or busy - or get by freezing

See about stopping noise
of Engine as far as possible
= Muffler ~~etc~~

Also - have mine stop, sounds
due to beat of waves -
& head piece in additional -

Ask how much pressure buoy will
stand - should stand 400 lbs
square inch

Mention in buoy report that it is likely
 The enemy may attempt to send out
 wireless to prevent our wireless on
 buoys from being effective. They can be
 identified by using water sound signals
 which are simple and can be applied to
 Each buoy -



Tunes for Resonator

To pick out specific buoys or
 like Sub M & Aeroplanes
 or launch signals

In water resonator
 $\frac{1}{16}$ of an inch per vib per
 second

64 Vib 54" long
 1080 sec 3" long

see ~~Waves~~ records
 air sounds

to hear low notes on
 Water Resonator

use given interpretation
 in the listening tube -

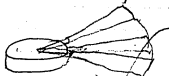
1. System running & submerged can detect vessel on surface running at average distance 1500 ft. Detected by Microphones, Oscillation receiver, or directly thru hull of boat
2. Noises quite readily detected in tanks of halibut, appear to act like a Helmholtz Resonator
3. Vessels running on surface can detect other vessels running on surface at times up to 1500 ft but not so well as between a surface vessel & one submerged.
4. Submarine running submerged at 6 knots does not make sufficient noise to allow its detection at 600 ft even when position is known with any detector supplied to ships.
5. Mr. Williams of Int. Marine Sig Co. had special receiver lowered over coils of vessel & tried to detect submerged vessel without any success.

see if break wheel has been shipped to Kennedy if not when -

Tell Macomber about delay in purchasing Dept.

Witch arrange Weyner go to Newport go on sub submarine & record on show several positions also running on surface

Dally go down to Kennedy for turning, waste space in Oberstar's Room



Balanced
funnels

Look out busy dont time
with the way, when does
manipulate air

7cc O₂ Sp₂ slower 5cc
show



near 16, a time,



without formal 4"

Used fork approx 290 Vib sec
tuned from Piano II notes.

CC Measure

Air Column 10 7/8 long
Diameter 2 1/2 inches

Adding 5 cc very little change
additional 5 cc Reduced to 75 1/8

"	5	"	53 1/8
"	5	"	30
"	5	"	20
"	5	"	10
"	5	"	5
"	5	"	3
"	5	"	0

10cc w/ 1/8 inch in cc column
in time,

Hence 1/8 of inch above or below
in 10 7/8 Column will not
throw it out of time 20%
1/2" kills it dead

Resopod deflected May compare
needs 900 ft.

Talagh Kennedy first
day smooth water

outside took go

out to 20 to 30 fathoms
4 try - friction of bottom
too much in shallow
water

Wally rough test
Crystal lake waves
from above about

300ft 65sec $\frac{18.8 \text{ min}}{\text{per mile}}$ \rightarrow

$(5\frac{1}{2})$ 10 deep

$(2\frac{1}{2})$ " " C C Measures

$(1\frac{3}{4})$ " " length Column

$(1\frac{1}{2})$ $11\frac{1}{2}$ Responding to
290 vibrations
sec

If the big tube is closed
with plate with 2"
hole in center then
The Column is reduced
to $5\frac{3}{4}$ @ $5\frac{3}{4}$ - instead
of 10 @ $10\frac{1}{4}$ Open
probably the octave - perhaps not
but with $10'$ + lap on

get nothing
if this is ok - our tubes instead
of $5'$ long only $27''$ is needed I think
it all to be a wrap

Sub M data -

In running submerged usually use 2 motor
Res shafts for various
Coals G4 - 125 to 560 G1 2+3
152 to 400 E1 150 to 340 K boats
146 to 374

Foreign ships entering American waters
likely run very slowly
Main Driving Motors directly Connected
Commandala segments G4 - 124 each

2 Coils to Motor Dia 17 1/2 inches
G1-2-3 288 bars Dia 27 1/2 inches
K1-2-5-6 - 252 segments Dia 24"

Number of poles G4 - 6 each
G1-2-3 - 8
K1-2-5-6 - 6 (interpole) main
Vibrations 4 (interpole)

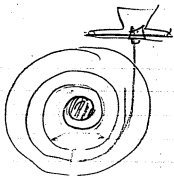
Motors other than main driving are
running when submerged some
continuously some intermittent
Besides main Motors submerged
Pumps main + adjusting intermittent
or gears Also Vibrations continuous
direct connected - Gyro Compass
Motor Generator dynamo, Voltage

Regulator A.C. rotor all continuous
direct connected -

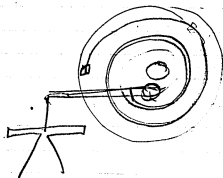
Motor Generator for Ferris
Oscillator direct intermittent,
Steering gear Motor continuous
or intermittent

There is a perceptible humming
noise when running submerged
from gyro compass pithead
Adjusting pumps in Central
Central dept of K boats
Pumps in pump room
Main Motor Compensator in
Motor room -

Vibrations is felt on traveling
Hull with the fingers as a
slight tremor and periodic
vibration at high speeds
No knocks or jolts except from
Pumps - Sound of screws
Can be heard in after end of boat
also thru Ferris room
To obtain complete info apply to force Command of
submarine



Slower than
Faster than 5 seconds per beat,



Pendulum 39.1 1 per sec
1 inch 6 per sec
Square of length -
Independent of weight in Bob -

Curvature of Earth

1/2 mile 33 ft
1 1.32 ft
1.5 4.97 ft
2 5.28 ft
3 11.88 ft
3.5 16.15 ft
4 21.10 ft

Speed surface waves Crystal data

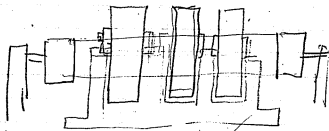
4.615 ft Second	1 per sec	4.615
	2 "	2.307
	3 "	1.538
	4 "	0.752

1 wave 1 sec	- 4.615	ft long
" 2	9.230	
" 3	13.845	
" 4	18.460	
" 5	23.075	
" 6	27.690	

Get faster waves

(1312)

Wave Oscillator - slow wave



Wholes act like a
Compass on
ship in quiescent

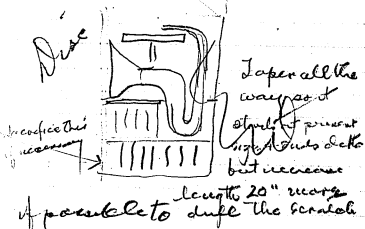
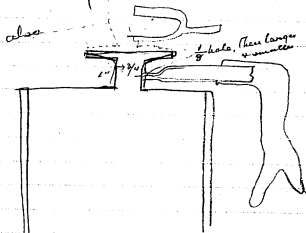


actual center of gravity

Made
Current from undersea magnet
works coil & oscillates field

Each fly which has knife edges
at various distances above
center

Jenny Test



Weight of air in resonant column which
is equivalent of being connected to

Diaphragm -

37.5" V ₆ sec	8. gram
75	4
150	2
300	1
600	0.5 gm
1200	0.250 "
2400	0.125 "

Based on
10" Column
2 1/2 dia. tube

Do not use lamp glass in vacuum
(light) with ~~pit~~ ~~horizontal~~
chromium foil to ~~assist~~ to help

Leakage: Why cant an anemometer
be made to vibrate sympathetically
with Res + inductance, so any
note coming over telephone
can be transferred

Piano notes

32	96	144	240
64	106 2/3	160	256
72		170 2/3	312
80	120	92	1024
85 1/2	128	213 1/2	2048

Diminished note how
bad & matted with
glass surface - var
sinks in - Fry
Varnishing take & then
bring up to 300 degrees
for a few minutes
& then it will soak
in & make uneven
disc then print &
it should be even

Fry some Chino V₆
on steel plate approx 70
bleak

Try blanks with China
which been baked
300 gradually to
continue for 1 hour
print -

Also 1st Varnish with
Resin bake them
China bake then
print -

look up 1 Room 1 flock
to chalk -
+ don't give up
Expts - use drops
test - This
blank is OK & blank
when any scratches
its due to Copper
Master or tracking
Try one with glass
or did I -

Elasticity Resonance

Vib sec	Column	
1.18	128	inches
2.217	64	
4.435	32	
8.87	16	
17.75	8	low notes
35.5	4	before system
75	2	
150	1	

Resonant Column

300	22"	
600	11	
1200	5.5	height of Col
2400	2.75	by inverse square

Best for listening in open top
is at water -

Closed both ends no difference
anywhere -

Transparent oil to smooth
water to see subm -
for launching, other oil -
to stop white Craps -

Testing in stock -

must oil		
$2\frac{1}{2} \times 2\frac{13}{16}$	32" long	
$2\frac{1}{2} \times 2\frac{13}{16}$	24" "	
$2\frac{1}{2} \times 2\frac{13}{16}$	19 $\frac{1}{2}$ " "	
$2\frac{1}{2} \times 2\frac{3}{4}$	23 lbs	
$2\frac{1}{4} \times 2\frac{3}{4}$	50 "	
$1\frac{15}{16} \times 2\frac{3}{16}$	1300 lbs	

Approximate Vibrations in
submarines -

Submerged -
Screws 7 to 37 - fast or req speed
Committed 450 to 650 Blows per
1000 to 1500 feet "

Gyroscope, 5' high - P
fans & pumps 100 to 200 P

Displacement waves Non periods
One wave in 2 to 5 seconds

Sectional Vibrations different
parts of hull & false deck

Gyroscope 7000 R.P.M. West

Beats given out by the 2 screws
will be plain - Variation of
Speed around 3%

To make short fibres wood -
Use Reg Dupont, treat in
disintegrator with sulfite +
then dry. This will separate
all the fibres - + it will
not ball up like Callon
if looks yet be fine -

Make a Bell Telephone with soft
iron so can use battery
in circuit instead of
~~permanent magnet~~

Chalk telephone, dry
Rb₂ with various
oxides dissolved in it
Add Sn Zn Mn Cl, Borax
Hg - Sb,
also Salts -

Submarine Devices

Now used or possible

- 1 Hydroaeroplane - Bombs with range finder Report
- 2 Buoy Station, reporting by wireless ^{Casey's} ~~Casey's~~
May have cannon, Torpedo, ^{Edge break} ~~water~~ ^{and} ~~air~~
- 3 Cable reporting system
- 4 Fast boat, detector, 3" - special arrow projectile
- 5 Night charging detector, night glass, flare
- 6 Destroyers
- 7 Anchored fish net, pull gives signal
- 8 Nets & trawlers
- 9 Dredge sea, also with net
- 10 Swath or displacement work give signal
- 11 Electric Aeroplane, bomb payload wire from ship
- 12 8 ft wood wheel spun high Vel TNT dropped in water
- 13 Sim Edoon Torpedo - wire floats on ^{surface} ~~in~~ ^{range} ~~water~~
- 14 Torpedo Controlled by oscillator or hammer
- 15 Chain shot, diving periscopes,
- 16 Spinning wheel TNT in
- 17 ~~Lead~~
- 18 Special abnorm periscope device
- 19 Echo device

1 = Mason-~~sky line~~ ~~blackboard~~ ~~Experiments~~ ~~smudges~~

2 = Submarine Detector

3 Splash Range finders - Making -

4 Visual signalling system OK X

5 Coal fire ~~extinguisher~~ OK X

6 = Sound Range finder, Experiments

7 Submarine search light Ex

8 Aeroplane detector Exptly

9 Telephone system for ships OK X

10 Improved night glass Homatrolin
4 goggles OK X

11 = SO₂ Absorber for ~~Splash~~ men
made

12 = Cleanable Range finder, making

13 = Telegraph ~~body~~ ~~station~~

14 Cable system Sub M detectors -
look out for static reclamation -

15 Turbine head ~~projectile~~ made,
+ test with Cannon

16 Aeroplane ~~projectile~~

17 Submarine projectile

18 Smudging ~~periscope~~ OK X

19 - Black smoke projectiles Exptly

20 Oil tank finders - Exptly

21. Extension ~~Mount~~ for Ore ~~advent~~ ~~light~~
mounted in ~~gun~~ ~~ports~~

22 Illuminating distant sea areas.

23 Hydrogen Detectors, Exptly

24 Submarine ~~chg~~ at night detectors
same as aeroplane detectors

- 25 = Bomb range finder for aeroplanes
+ dropping
- 26 = Juncos fork system trench communication
- 27 Cheap hand diagram penmanship absorber
- 28 Corrosion of submarine guns OK X
- 29 - Cancelling out local soil ~~work~~
making apparatus
- 30 Absorbing Explosive products in ships
- 31 = Secret wireless - making
- 32 - More power for tape machines
33. Make 1000 watt ultra high frequency
generator for supercolliding ~~work~~

34

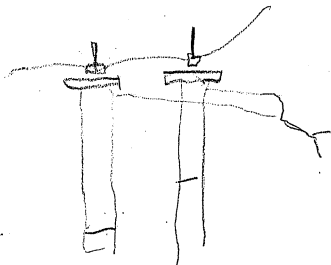
$$14 \overline{) 300} \begin{array}{r} 21 \\ 28 \\ \hline 20 \\ 14 \\ \hline 6 \end{array} \quad \begin{array}{l} 21,4 \\ 22 \text{ ft sec} \end{array}$$

$$22 \overline{) 5240} \begin{array}{r} 238 \\ 44 \\ \hline 84 \\ 66 \\ \hline 180 \end{array} \quad \begin{array}{l} 23,8 \text{ ft sec} \\ 24 \text{ sec} \end{array}$$

$$\begin{array}{r} 25 \\ 20 \\ \hline 5 \end{array}$$

$$60 \overline{) 537} \begin{array}{r} 89 \\ 48 \\ \hline 57 \end{array} \quad \begin{array}{l} 8,9 \\ 9 \text{ min} \\ 24 \text{ ft sec} \end{array}$$

$$24 \overline{) 12900} \begin{array}{r} 537 \\ 12 \\ \hline 90 \\ 72 \\ \hline 180 \end{array}$$



Notebook Series -- Pocket Notebooks
Notebook, PN-17-04-27

The one dated entry in this pocket notebook is from April 1917. The book was used by Edison, probably during the period April-August 1917, for notes pertaining primarily to war-related experiments. Included are experiments on sound detection devices and other means of locating submarines. There are also references to Edison's work on a "hydrogen detector" that would indicate the presence of dangerous gas in submarines and a "kite rudder" that would enable Allied ships to turn more quickly in case of an emergency. Some of the comments are of a more speculative character such as the idea of using cocaine, morphine, or some other "paralyzing narcotic" in bullets. In addition, there are notes on disc record experiments, an idea for a hornless disc phonograph, and a few remarks about the "Fleming valve" (a vacuum-tube diode invented by John Ambrose Fleming in 1904). Some entries appear to be transcriptions of entries from PN-16-02-15. Among the employees who assisted Edison in his wartime research were Isidor (Jerry) Chester, Absalom M. Kennedy, William H. Knierim, and Benjamin Liebowitz. Employees mentioned in connection with disc records include William W. Dinwiddie, Archibald D. Hoffman, and Josef Miller. The pages are unnumbered. Approximately 150 pages have been used.

April 26th 1917

Projectile fire Calcium Carbide lanterns
15 miles light up to see Enemy ships.

Signalling by Searchlights, several
messaged simultaneously.

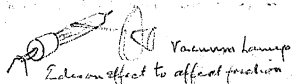
Bombs from flag ship, night,
up in air displaying signals, or
give out sound data & flashes.

Smoke ring on top of Curved pipe
to give direction & speed of
wind.

Arrange early recoverable
goggles, mail boxes & containers
with much subdued light
when why range finder part of
there & do not connect goggles
(inhabit them) set lantern on
Range finder to stop big vision
& glare.

with 100ft mast can see horizon
17.4 miles, with 87 ft. additional mast
21.34. less haze & better sight
see submermin

Acroplane projectile, wings 1.74 wide
22" long holds up 850 lbs (10)
12" gun projectile at Vel of 2500 ft
Sec



Clarke & Colman's McWhorter Chief Scientist
Libby. Elec. Bklyn Navy yard

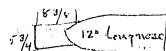
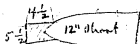
Bentons Dickinson & Gunnery Cordeiro
allusions to windmill projectiles

Pressure 1/2 in 14" gun 20 tons
App. mach - 7 tons at muzzle
Actual pressure 17 tons -



One stage Audion - no detail connection
Mathis, diagram

Mundres of 14" shell at 2600 ft sec
3030 lbs. This rectangular shell 70ft sec
Coast Def shell



Muzzle for absorbing Explosive gases
shells absorb principally CO +
dust of explosive + free Nitroglycerin

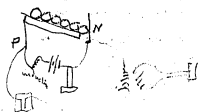
Dr Chas S Hastings 248 Broadway
St New Haven, Brachian Lamp
Expert.

Roll of big war ships about
 15 deg sometimes 20° in a
 hurricane. Vibrating or Roll
 of ship 14th seconds.

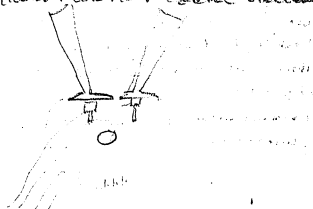
Throw sun in eyes of quanners
 or Spelling range men by
 a Myriad of Mirrors at every
 angle. Continuously changing

Perhaps our projectiles just before
 firing should have a small plug
 pulled + a charge made so if
 it falls short it will explode
 after sinking 20 ft. might do
 damage underwater, but
 missed armor or failed
 penetrator.

Commuter Balls



Commuter balls, wires from phone
 wires or decrease resistance
 + this Commuter battery to be added
 great variety Exp. pulse periods
 Cus Balls - with wires in the Commuter
 Mirror, P. 56 + 40 ball. Follow
 Each pair. action of wires within
 Mirror + controls. Local battery



switches to Commuter opposing
 + detect by difference

Piston switch on receiver
of Audion phone on ship

Arizona has 100 phones + 20
circuits Maximum phones on
one circuit is 10



Induction to receiver
through
Telephone cable

14" Naval projectile hydraulically
indented point of graphite.



Good range for Torpedoes work
in 500 yards or less but
gunners should be skilled
Enough to strike Submarine
at 500 yards

Immersion by steel core
Molecular Magnetic Ring etc



negative

+



Telephone receiver


or Telephone Key or Battery

adjust
to 001.



Coal covered around closed to give big
thrusts -

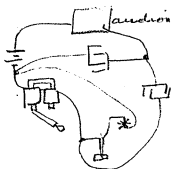
Dawson reports, side wheel
 steamer 1500 yds^{approx} away sent waves
 that reached him in about
 5 min. first waves rocked
 boat violently, by time
 wave reached him steamer
 was 1/2 mile away
 after 1st set swells there was a
 quiet interval then came 5
 distinct sets of swells 4 or 5
 waves each with intervals
 between each set, after this
 water was rougher for some
 time than it was before steamer
 passed altho loud was less
 Boatman says he has known this
 section to be disturbed for an hour
 after steamer passed says the first
 longest set waves are the Bow
 swells Long other swells
 were Stern swells
 The Stern swell goes in direction
 of boat but spreads out



Thos -

Pendulum making over 4 back
 length 9.75 for 1st sec
 1.087 3rd sec
 1.29 2.75 sec
 .92 3.25
 1 sec 1 way 39.12

Knowns plan-apparatus made



Resonance $2\frac{1}{2}$ per sec up to
100 per second

Aeroplane at 100 miles per
hours makes at least 1500

Rev p min

They use 6 8 4 12 cylinders

The 18 is double 4 + 12 is
double 6

#12 is 150 sec #8 100 sec #6 75 sec

Diameter of largest propeller
on Submarines is 55 inches
Pitch 45 3 Blades

Range finders are why on light

Device to find continuously the
speed of enemy ships so can
fire torpedos accurately -
Liberately has it skinned out

Boring by internal screw sectional
pipe conveyor type for trench work

Use very high note emitted from
headphones to telegraph to trenches
Men having tunnel resonators
also by heliograph also 2nd
wire magnetic molecular kick

Reliable for hearing messages +
In papers + movements of artillery
+ troops + tracking big guns
Microphones + Microphone and microphone

Hammering outside of trench
Sounding toward side of trench, also
deep down for telegraphing with
large Pans Sounding board -
Suction, Signals by a mechanical
Oscillator at trench & transmitter
at headgrip

Machine guns controlled at
a distance with an Explorer to
prevent Captives, or Central Console
with towing tower & branch for
E-caps

Overtuning record makes
435 Vibs Sec

Working Co says in blue water
we bright sun thin divers can see
dimly 150 ft down, can
see shadow of vessel above
in cloudy day see 50 to 60 ft

Want device on submarine
to locate another vessel without
rising -

Euphos glass spectacles absorb
Ultra Violet & part of blue
Can see sharper

Storage battery built like a
Condenser 003, No. 04 parts, paper,
Iron parts, paper & so on for
Enormously rapid discharge for
Small torpedo -

Jungtic Acid chalk Very
Durable Use KOH, takes a lot
(Chalk telephone) - also try powdered
Tungstic India slight mount &
Meridol Can use H₂SO₄ with
Jungtic acid residues

Dry Carb Lithia

Wanted Range finder to show
position + height aeroplanes

Microphone Barium cells
.027 dia 10 of them weigh
1.3 Mily

N_2O_3 apparently don't oxidize
iron in alkali & yellow at
 45° fahr or lower. Iron
needs a catalyst like Pt
perhaps Hg should be left out
perhaps a little ignited lamp
black should be mixed with
the iron

Wake of a submarine perfectly
apparent in all but heaviest
seas when submerged 80 ft
down. Even when observer
dead aft or in line with
submarine travel oil
globules continuously come up
Down seen 150 ft deep at
Gibraltar by aeroplanes only
500 ft high, but track built

150 lbs TNT gives at 110 ft
260 lbs pressure per sqr inch
on a submarine, a subm
can stand 150 lbs

Small torpedos 5 ft long 6"
dia - 15 lbs TNT expelled
by light swirl gun held to
shoulder, now being developed

Try transmission of waves
& knocks in earth & rocks

Miller but avoid 12/Rosin
Records in your room &
12 in Kings room with date
good since all records

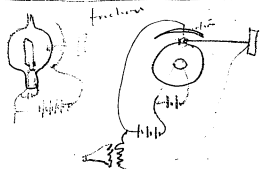
Jessenden should clear a
looped by his cellulum

Resistance due to Inductance
is the square of the turns
magnified etc being the
same

1 Turn 1 cm 1 ohm Inductance
10 " 10 " 100 " "
4-20 on

Straight Induction coils very
inefficient as it takes a lot
of current to build up the
lines Closed transformer coils
far more efficient
Best to have largest cross
section of iron since you get
smallest circle possible & get
get the low on, takes very
little current to throw out
the lines-

Try hard pressed Rosin
of lead on vacuum strings



Best Jumbo 50cc Straws and
50cc residue from distilling
Solvent Naphtha:

Val of Sound 10 observations

1088 ft sec at

0 Centigrade -

Value of Measuring Coeffs
on 3 Stage Condition -

O. on box all the Current 100%

2 77 %
4 62
6 50

8 41.5

10 33

12 27

14 22

16 17

18 14

20 11

22 9

24 7.5

26 6

28 4.75

30 3.75

32 2.9

34 2.4

36 1.9

38 1.5

40 1.25

42 1.00

44 .8

46 .65

48 .52

50 .41

52 .34

54 .27

56 .21

58 .16

60 .14

Second box

710 — times
10 cycles

Capt J K Robison Newport RI
best man on torpedos -

Spot in eye front of pupil
Cut off spine; several lights etc

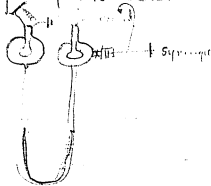
Find two liquids both placed
in an explosion shell the
Spray mixed by explosion make
a cloud that remains long
in the atmosphere -

Make sub machine instead
of Colloid make fine
grade of shells mix in
bath & press between cold
rollers, also try roller
press

Resinate Mag when it suddenly
Changes MP has a change
Recover it by acid + see
what its MP is -

MP Res Mag (pro qual) 257° Fahr
Res lead options at 280° Fahr

Hydrogen Detector



Remember try higher density
in Copper plate only

Peroxide Co. Mn. $\frac{7}{2}$ on Cu
discoid in electrolytic of
Alkali Cell will in time
be changed at

Try a rotating mirror
for observing specimens

In smooth sea should be
able see 2 miles the displacement
waves of a submarine

All working in installing
water in sub machine & may
perhaps easier by freezing - hand powder
Also Export get air from the
sea

Hydrogen Indicator

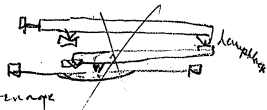
Ag phosphate with dark at
Ordinary temp. slowly
attacked by Hydrogen increases
greatly by heat at 100°C
Ag sulfate action begins at
 100°C AgO at ordinary temp
Cuprous Sulfate at 250°C
light dont help -

Hydrogen combines with
Sulphur without limit
at $215-250^{\circ}\text{C}$ HS not
decomposed at 310°C -

Yellow Mercuric Oxide
reduced by H at 100°C

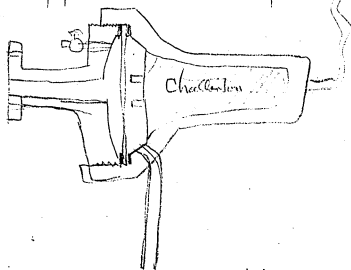
Mercurous Nitrate ditto & it
also attacks O

Moore

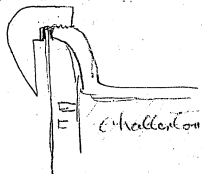


Did 7 qcs. Jussendau lateral
Jalant into Kinnam - find out
what he thinks about it -

Find out where all my XYZ
apparatus is -



TRANSMITTER NO 3

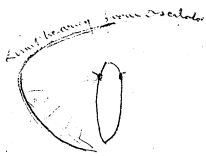


Transmitter NO 1
Req Belt $2\frac{1}{2}$ " dia 015 from pole
no tube -

NO 2 Transmitter
Same as NO 1 but has
a Equalizing pressure tube
 $1\frac{1}{4}$ " dia 14" long

Suns says periscope has very
little range although coming
tower can see out to sea
certainly lit says he can't
understand (limits) range
of periscope - says 21 knots
Coulson 0001

In heaviest typhoons in China sea
no waves motion felt by a
submarine 75 ft down in
deep water & 100 ft down in
shallow water.



A M Kennedy Care Charles Linn
Union at Red Bank N.Y
Phone 3 Red Bank

Bray - Collapsible boat &
Suits -

Little Press in fab -
Ram 5"

Plates 10x10
2 steam plates 10x10x3" thick
will take about 4" piece
between -

Linn on Sub's (Construction)
4 8 to 11 knots each way
Seagony Sub 500 tons up
these are the German subs in
near of 15 knots on surface
10 below so much noise
1000 to 2000 yds

Days difficult to see Sub on
account of dark back ground
of the water (note this)

Bottom of keel to top periscope
40 to 42 ft. say English
boats are certain to sight
any periscope in their circle
& Report but they can

Come down at night & lay
on bottom in day time -

~~will use or horse fig~~
periscope - prepared by attaching
his lamp one so he can shade
it up & see & yet see in reverse
could see soft so they close eyes
Centron in him - ~~the~~ Maxed people
~~considering~~ but too late to see
(Note the flag tube kind with
candle in room & go up
ice of it)

Sub must submerge boat
to a few feet of draught
(note they take the center of
hull as depth)

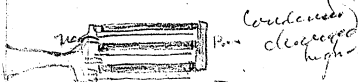
German Subs no longer change
at night but only in day
no detection get them at night
from noise -

Japanese Use K&T to keep
at 0 ft for long submergence

~~Torpedoes used as ball bearings
3 assemblies of splintered
throttle used from gas cylinder~~

~~Bubbles show the direction
torpedo -~~

~~German have a transparent
Observation section at sea
to see ships 50 miles away~~



~~Ground - Sound so can
vary the observation~~

When periscope is above
water it vibrates so
so can see war ship 6
miles yet objects are indistinct
they so dark in houses are
often seen when in water

If get enough over Column, so
 responsible of as straight
 make a short perpendicular
 with low hanging chain
 inside, with nose a little
 ahead of straight of beam
 (causing Column to
 separate). This to hit
 the forward part of Submarine



Vibration of ~~Revolving~~ ~~propulsion~~
 Rods forming safety rail on
 top of deck must give
 a note. ~~Caution of cover~~
 must send the deck to
 indicate it is ~~covered~~
 give a note ~~of~~

Locator or against the sides of
 ship by the same means
 for the hull & give note.

Make a $4\frac{1}{2}$ inch dia. line
 with iron center & 1 inch
 below above it all mounted
 on the ring of $4\frac{1}{2}$
 Column

If Submarine lays on bottom
 & buoy near each certainly
 has gyroscope & lighting & battery
 motors.

Send out green or other Monochrome
 beam from area light along the
 horizon at $2\frac{1}{2}$ mile from ship
 & note in oscillation,
 Use a slit & long small tube
~~viewing~~ with area movement
 then across the line in speed
 Reflects in new perspective

Periscope should move thru
danger zone slow speed or
fast a when the sea is rough
either increase or rapidly
decrease speed to the
Calculation of sub M out
of clear,

Any experiments of a
periscope 4 ft above
water level by a
glass out of focus
to widen out, possibly
a lens could be made
to widen periscope
image many times.

Looks to me should observe
periscope from glass port hole
almost in line with sea
to whiz. The sky line a
Schubert's, Curvature of Earth
was bad for them as far as a

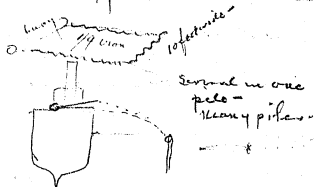
they would have to raise
periscope up.

But if we go high up on
Mast & he can just see
Mast or top he will see
Schubert's, also,

If split lens gives 2
images of a periscope with
split lens 15 ft out it
has lens split in 10 places
& get 10 periscope images
This making them conspicuous
to searcher
possibly with prism could
bring these from 2 lenses
Each having 10 splits
& add them

||||||-|||||| would be
size of a ship - & easy to find

Experiment on this



Shoot these along ship when
torpedoes arrive

Have a small 10ft 20 inch
electrostatic cell, wire to
boat ready to lower &
when see on coming send it
out & hit & explode at
speed 40 miles hour
200 H.P. high Voltage source
Cable - cleared from ship
~~at~~ held & near
torpedoes & explode on it.

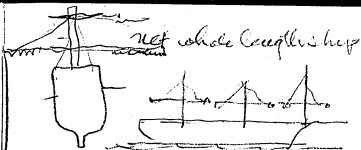
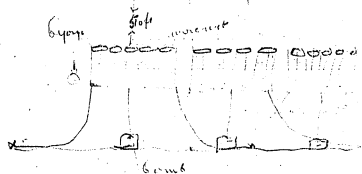
Shoot Shrapnel wheel 1 1/2 inch
but instead of Shrapnel
substitute ~~the~~ can of the
spraying oil to burst into
spray to smudge periscope
or dry lamp glass, so they
cannot see their the wake
if they go down & come up
again all will be washing
& clean plug them again -
So no accuracy is possible for
shooting torpedoes -

Can a rudder or fixed
in front of a ship that can
be dropped in case of
emergency so as to turn
quicker or a screw
with extra engine -



Armed boat
 300ft boat 15 covered over
 boats with 1/4 sheet iron
 down to her deck height.
 put these 30 boats out
 when danger zone reached
 + tow to safety.
 Known to fog power.

Warning for subs only use dippers
 to Reg. at depth - warning but release time



flat ways & edge ways
 with float.

Washington Information

1 = SubM running submerged can
 detect vessel on surface running
 at average distance of 1500 ft
 Detected by Microphone or other
 receiver or directly Contact. Near
 hull of boat.

No uses quite readily detected
 in trunks of Halibut which
 appear to det like a H. usually
 seasonal.

Vessels running on surface
 can detect either vessel
 running on surface at times

up to 1500 ft but not so well as
when submerged & down
a surface (exactly overrunning
Submarine?)

Let all remaining submerged at
6 Knot & out make sufficient
noise to allow if it detects
at 600 ft even when operations
is known with any detector
is applied to Ships.

McWilliams of Sub III Signal Co
had a special Receiver located
across it of a small boat to
detect a submerged vessel
without any direct

Have a depth gauge put on
Submarine way

Look out in any doubt time with
waves

Dull test Crystal Laker
300 ft in 65 seconds fresh
water. 4.615 ft sec

Sub III information

Boats G 4 1250 560 Revmin K boat
146 @ 374 G 1-2-3 boat
152 @ 400 E. 1 150 to 370

Foreign Sub entering American
waters. Like to run slowly

Main driving motor direct on
shaft - 2 screws they don't
run axially together. 3% diff
Beat level cut sound heard
in boat in per a pattern +
give 100 ft

Commutator Segments
G 4 - 124 each 1/2 Commutator
to Motor - Diameter 17 1/2"
G 1-2-3 - 288 bars Dia
27 1/2" K 1-2-5-6 252 bars
Dia 24"

Members of Poles G 4 each
G 1-2-3 8 poles (unpaired) main
K 1-2-5-6 6 main poles
Ventilating 4-

Motors other than main driving
are - Running when submerged
Some continuous some intermittent

Pumps - main adjusting
intermittent or gears
Also Ventilating continuous
direct connected Gyro
Compass - Motor generator

Oxygenator Valve Regulator
& Motor, all continuous
direct connected

Motor generator for secondary
oscillator direct -
Intermittent steering gear
Motor, continuous or intermittent

There is a perceptible humming
noise when necessary

submerged from Gyro compass
Calfit - adjusting
pumps in both main & auxiliary
Dept of K boat - pumps in
pump room Main Motor
Communications in Motor
Room

Vibration is felt on touching
Hull with the fingers as a
slight tremor & periodic
vibration at high speeds.

No knocks or jolts except
from pumps

Sound of screws can be
heard in after end of boat
also thru oscillator

For full information apply
to Force Commander of
Submarines -

Penteliumi - 39.1 2 sec @ right
 1 left 1 -
 1" long 6 per sec
 Square of the length
 independent of the weight of
 the D.C.G.

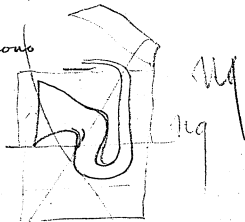
Curvature of the Earth

1/2 mile	.336	.165
1 "	1.344	.66
1 1/2 "	2.016	1.48
2 "	5.28	2.64
3 "	11.58	5.94
3 1/2 "	16.15	8.07
4 "	21.10	10.50

Piano notes

32	96	144	240
64	106 2/3	160	256
72	120	170 2/3	512
80	128	192	1024
85 1/2		213 1/2	2048

Disc Phono



Longer beam to cut out scratch -

Weight of air in a resonant column
 which acts as a weight on the Diaphragm

37.5 Vibs/sec	4 1/2"	2 1/4" column
75 "	40	8 grams
150 "	20	4
300 "	10	2
600 "	5	1
1200 "	2.5	500 milg
2400 "	1.25	250 "
	.625	125 "

To make Word Clock but short
 beam Dupont word flow
 with self file and gears
 then they this will separate
 Clats if giving just what
 we want & can use $\frac{1}{2}$ the
 amount,

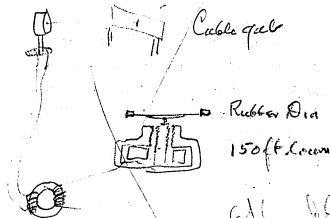
Check heliophore -

Try KOA with various oxides

- soluble there

Pb Sn Zn Mn Al Ti
 Hg Sb - also w/cts,

Test the Cable gals by
 Touching Bell heliophore,
 dia size of press deflection
 measures resistance.



for slow waves

Ask Kneron if it makes any
 difference how thick the
 pendulum ~~is~~,
~~is~~,

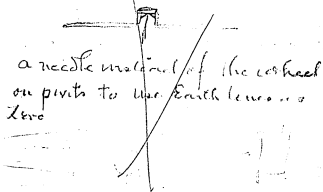
Cocaine Morphine or other
 paralyzing narcotics in beaketh
 Automatically Controlled
 Machine gives out a distance,
 etc etc etc

Thionchloride Carbon or
other cheap alternatives
for hard fractures
Must be ready gas,
Stupify them at least
to avoid reaction as it will
settle. Several chlorinated
hydrocarbon have stupifying
powers,

~~For Submersion of
Trey Column & Chem in
Shellin~~

Send out an Oscillator
512 note get echo on tuned
Resonator to reaction &
Resonations - see if Government
has given oscillator
Big Bell might answer
that with a ring

~~Temperature Use the central
Pentulum for 5 sec to
10 seconds for 1.~~

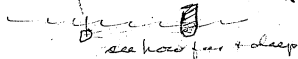


~~a needle instead of the central
on pins to the Earth lens...
Zero~~

~~or a conductivity~~

Make a Magnet over the
10" Column

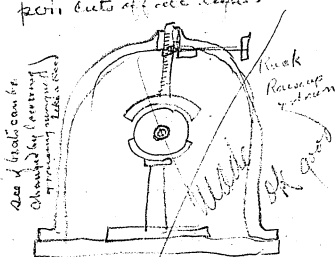
Submerge Camera at Hook



~~see how far & deep~~

Try experiment of rotating reflector
over den to throw into line & take
advantage persistence vision to
find perception. Better evaluate a
section to the center circles & move
it along horizon.

Try get these experiments
also through long left blackboard
 $\frac{1}{2}$ $\frac{1}{4}$ or $\frac{1}{8}$ inch.
Try slits on these tubes 50
per cent cuts off all light.

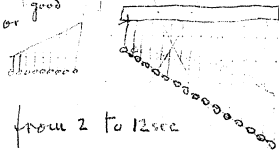


Timing by increase & decrease of red
back. Rubidium —

Make several pendulums from
1 single swing to 12 ^{per sec} by adjustment
1" long head per second if OK long
make adjustable.

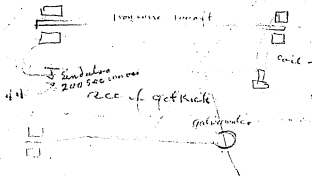


Just tried this with above method it looks
or good



As most of light from water
is polarized try Nicol prism ^{or}
also Tourmaline or other substances
to wipe it out from vision
perhaps see perspective better
possibly exp. more sensitive.

Take all the Colored solutions & absorbents of traps to Hook when they go down with telescopes to try



See Proc. Roy. Soc. 1890 Vol. 47
p 122 Fleming Valve

With $4\frac{1}{2}$ " Column $4\frac{1}{2}$ dia 005 mean
1" diaphragm iron & Bell from receiver
10" thick away. Blitt Non Deciph

Bell 8" away from opening of
fork. The loudness of Stratt Bell
against ear and these Column is
the same, showing that
great amplification as against 015 - 1000
+ 100. in Column - must be at
least 6 if not 10 times or more

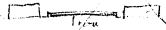
Must get a balanced Bell diaphragm
so big thin diaphragm not leak up

Even 1" hole in 3 min don't let water
in without entirely too much noise
When whole Column of liquid used
Can noise is thrilling but due to
tube. If let in unbrattled gases
OK

Weighting Scale -

Scale beam with pans on	13 per unit
" " " " " "	16
" " " " " "	24
Beam only	29

WE added on a weight of
~~40~~ grams consisting of
a ring of lead on the
4 1/2 inch on 1/2 inch
85% Mercuira head



was just a negative
best at all hand for

C. as figure from ~~24~~

Req 266 with lead 24!! or 215 inches short

~~Weight on weightless~~ ~~Shadows~~

Cobaltum Magnets 8"

away. 1/8" with lead ring on

we put ball ring to within about 1/8" of edge.

It may be such heavy weights would be
bad for very high rates -
lead ring put on by Preece
possibly lead don't follow curve
but was used up in
Preece's like our phone's
floating weight

NOTE When we had magnets 8"
away got it OK without with
lead ring but when the magnet
was adjacent closer to the
1" disc of ³² inches of ³² at
put so much tension on
Diaphragm that we could only
hear it at 3" adjustment
from fork of magnet showing
narrow law of sensitivity

WE must have balanced
no tension Diaphragm
in water in column
phone -

Berry took off leading & then instead
of drawing the Column magnet
away 100/1000 as in first good
test where he got it 1/2 magnet
8" away he set it 170/1000
away & at a point where it
just perceptibly bulged through
at head the coil head
it 18 1/4" away of Magnet

Observing a grain noticeably
Recovering magnet power was
very much reduced probably
3 times weaker

This shows that now
the presence of a
non saturated magnet
in all cases
is a necessary condition

Using req. 100% mica die
we have been using but getting
on a 2 1/4 inch bell diameter
magnet of 1" Column was
25.3 instead of 24.1 with
1" diam. Sensitive was

6 1/2 inches away of Magnet
from fork instead of 8 inches
Distance Rec from 1" dia 170/1000

We are using a 1/2 x 7/32 Vent valve
in this 4 1/2" Column to let
air out of it quickly

Its a 1/2 Vent valve -

Column Valve 1/2" between
Closed & open Vent opening
Difference in Position

Equal to vent hole 5/16 inch

7/32



In the above experiments always
the Column shows a history
phase for comparison in the
same circuit

4 1/2 Column Double balance
phones, 005 mica - One inch
iron discs on each side of diaphragm
iron only, 003 thick -
best we could get when discs
were 0.31 away from magnets
was 7 1/2 inches away from
fork of the magnet.

Column with Double phone
30.6 - Vent hole plugging
Vent hole by pressing phone
around into Column may
have something to do with
this B.T.G. decrease of Column
Note in this test only total iron
of armature 006. Whereas it
should be 0.24 The increased
flux showed increase
sensitivity

In above experiment we tested phones
& used them Multiple & series -
Series gives 3 1/2 Multiple 7 1/2
showing too much Res or impedance
when in series.

passing radiant heat thru a
strip like Tassimeter shows
approx 1/2 of it is compared to
heat like alum etc. + some into the
magnetic circuit

Multiple teleph system -

10 forks self-powered phone in front
each all connected in series
& in line, ~~keys~~ short ck all
at other end 10 phones with
adjusted Column for a phone
holding tubes

The length of the Column
is a function & depends
upon the combination
Elasticity of the air
Column & the diaphragm
005 gives 26.6 002 gives
23.3 = 2" iron 0.12 thick
cut away alum
The 005 sensitive 11 1/2
002 " 13 1/2 highest yet

Longrod funnel tape (check)
Price 050 per inch of length

Design Horse for 4/12" funnel
+ with Column makes repair
sharp all complete, look out for
water - 050. 12 per inch

Important to find out why
with all this Open except 1 wire
to Column. Use water glass
The 750 Vit set is stable
but low? inorganic

Suppose instead of magal
at Water Release a heavy
leaved Chloride compound
is used for Column
is checked by value



10ft buoy with net
round around of cells
to give slight twist generally
to buoy so it remains
when at the water
line every 5 sec

Design Soft second
check this note to
be 50 @ 100 ft from
Ship - use blow
powder along gun
trough lead

Think it will remain
without most drinkers
on end or design that
act as sensors
1/4" extra flexible soft wire over cable

Design

Design



Electric Motor boat

20 miles hour

Went on 100hp out

Dropped down about

+ get in some of loops

Slowed down some

Put up some motor 100HP

If drift 25ft ^{2nd} ft 20ft long

drives out back controlled

by cable. cable has 100ft

Boat now may be permanently

over transfer run by cable

drives out back controlled

get in danger zone

Driveline, Serpentine Casson
Evap. of components of difference
out in Rain. ~~parts~~ ~~parts~~
use some high heat B.P. Paces
3rd so it will stand
it seems ~~are~~ ~~are~~
a little slower.

Mason put turbine on other
end of ~~projectile~~

BB etc



So the 700lb is a ~~chick~~ twist

Try blowing dry ~~air~~ ~~air~~ &
lampblack together - also thin
Clay

get some Sap only & blow air

or clean (blow) in the vacuum

balls drop but also ~~blow~~ ~~blow~~ ~~blow~~

or change to wood
stick 6

600

also phosphorated hydrogen -
get phosphine + carbon imp to react
set tray also asphalt on fire by
overheating, + then or match in

If any these work - use mortar
of lime, 1 wood pt ahead of front,
both sides of column to be used
all sun drying when a
few sample is being, or
show system shows one
near

get man for Dux di plating

find out all about Dux
Blow Cannon + tips,
powder used, heat of explosion
+ size gun, pipe etc

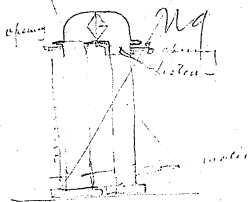
get ~~the~~ power required for
submerging speed
ordinance for submerging

40KW

Prob adding all hydrocarbon
give lampblack which
Electrical cell sets
hence H₂ -
without mixed with some
gas electrolysis as
sulfur becomes in
flame -

try white phosphorus
NH₄Cl + H₂ + others
Aluminum water vapor
Consisting of strong
sulfuric acid + H₂
gas - glaze together

Write & describe Column



Hollman - take sec of second
periods put in mixer and at
for Coxy & the periods
8 oz of Colton block mix
well -

Test the shifter see if more in center
& center will be with brush to try it
on his big forehand lamp

Hollman & Gieske
not ground part as a
country wrote that as

See if 1 block blower sweeps up
with water - if it the chalk
that really settles

find the heaviest gas that is present
at 36' hole for Reservoir column
Chl Methyfl

Patent present block & second
periods General process
Mixing tube after main powder
made back

Ground some wood pulp &
2 percent it so fine separate fibres
but not clotted thru
add to 2 percent powder

Some notes on the Davis Brown
General mixtures into strong
Microscopic other notes cross markings
In process of differences see if Coxyment
see if find out what it is

Very slow heating powder

Nitrate K₂H₄ 40

Sulphur 30

Charcoal 30

do slow no longer used

Reg Blasting P us

Nitrate K₂H₄ 62

Sulphur 20

Charcoal 18

Very slow nitrate Na 63

Sulphur 16

Charcoal 23

Employed in preparation
destroys in 24 hours

Sulphur by heating in
blocks in 24 hours

pressure in closed vessel

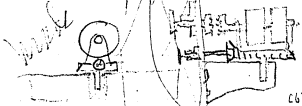
Density of charge 0.4 1613 K₂g/cm³
0.5 2401 "

In Cannon Reg section
pressure Val of Columbia
0.32 metres per sec

French war gun powder (black)

loaded with 7.5 inch mortar
cannon 45° weight ball
65 lbs - powder 3.2 oz
should do 1312 ft of
powder as CR

Baron - 1st Magpul rifle barrel
on piece holding barrel -



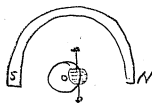
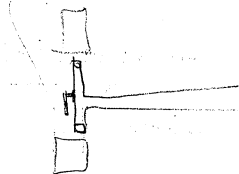
Get or see US Pat 939349
determining direction
of sound

~~Searches & shadow
Hops. get it~~

~~Try Rubber hat net
of down out of several
Houses -~~

~~William Green some
old newspaper -~~

~~Also some wood fibre~~



Diaphragm in center a piece of
Carbon or Alumina or other
metal glass disc like graham's
suspended by fibers with
mercuric needles on it or a
permanent magnet to give
pressure against the diaphragm
of a Condenser Electrophone
This to be a Carbon Microphone
under water

Micro

Profiling of ~~float~~ plate
in holes 10" Record

in air -
August 24

6.15 - 2.15, see Measurement at station

Water 15 "

Current 10 "

Water 10 "

Water 10 "

Water 10 "

Outside 52 1/2 Ton

Life Saving Station (or)

4/32 to 9/32 - Have written
these lines 1600 ft.

and some ~~rough~~ work on ~~the~~
with ~~check~~ ~~plates~~

No 1 tuning Code is 900, twin 900m
2

No 2 Code - 13500 13980m

No 3 " 8200 392.

Find out why our Ekolno Truck
is unreliable - ~~perhaps~~ fault
especially ~~with~~

Beckman - it seems to me our
spacing plants between grids
of rubbers are unnecessarily
brittle & bad for Regeneration

Put up Blank ~~Grandy~~ ~~side~~

1 piece - 1 ~~size~~ ~~pieces~~

Nov. ~~size~~ ~~pieces~~ + ~~various~~

1 Fuller Mill - also

Rolls for balling material
a la Victor -

See about 9. Part bonds of
Regeneration, what part of
part lines a part in safe.

Listen to ~~the~~ ~~Col~~
with your own Regeneration
see if ~~the~~ ~~lines~~ ~~are~~
filled ~~with~~ ~~lines~~

For Water to be run
has a small pump to run
to pump up ~~the~~ ~~lines~~
on each side by changing
valves. The number of
Stumps - ~~the~~ ~~lines~~ ~~are~~
to be run by hand
of ~~the~~ ~~lines~~ ~~are~~ ~~run~~

or ~~rather~~
Send to Mr. [unclear] of the front
of [unclear] [unclear] [unclear]
have them [unclear] [unclear] [unclear]
small [unclear]

Remember - you must
test the bath & keep it
constant, because it
should be just neutral
or slightly alkaline -
see 13 alkalinity man
it changes as you
don't describe it
enough -

American Subs -

Minimum + maximum number
of revolution of blades, 3 blades
to Rev Counts 3.

		slowest possible
6.2 per sec to 28		3
7.3 "	18.7	3
7.6 "	20	3
7.6 "	17	3

The other shaft is a multiple -

If only 1 wave per revolution
then, 12 waves per second
& slowest possible 1 wave

Determine breaking strength of each
1 fibers

2 = U2 make one with mirror like
size but unequal, twice as long
coil of U3 -

3 = U1 - Use the 18 magnet wire coil

4 = Use the double hump coil + spiral [unclear]

1 Inf	} natural period 159 per second	
1 Henry		
2 Inf	} " "	112
1 Henry		
2 Henry	} " "	112
1 Inf -		
2 Henrys		
2 Inf -		79.5

Henrys multiplied by $\frac{1}{2}$ for frequency calculating to 159 - NG

Henrys on a magnet increase at squares of turns 1000 turns same as 1 Henry then 2000 turns 4 Henrys -

Henrys are cheaper than Inf -
which has least loss.

If for instance we have magnetic ring $\frac{1}{8}$ area of iron mean dia 1" + 100 turns we have say 1 Henry if we increase area of iron equal to $\frac{3}{8}$ instead of $\frac{1}{8}$ we double the Henrys if we only used $\frac{1}{8}$ but twice the length only get $\frac{1}{2}$ a Henry -

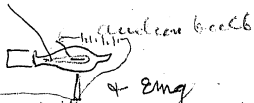


ONE Henry

1 inch section
best permeability iron
(annealed)

wound with
5000 Turns -

For small currents, like telephone
doubles the turns gives 4 Henrys.



principle to get rid of
phone - Recovery
current by all composites
of friction on rotating
Beck -

Resistance of American
Beck good choice -

~~Consider Beck's trial battery~~

~~Rec. in Beck's design of Beck's cell
See Beck's design~~

1.65 grams CuO per amp hour,
1.60. " Zn " "

8 cc per amp hour
20% H_2SO_4 ,

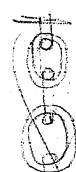
14000 German Silver Iron
Thermo Couples at 672 Felt
difference of temp gives
120 Volts.

Flows at 212° deg
above Normal temperature

Cobalt wire
German Silver
with Fe (10)

Experiment E Storage battery
then charge very low
rate & only $\frac{1}{2}$ charge
acc. of const. vol. rid bubbles
for lead ion work

Make a press
& $\frac{1}{2}$ second wheel
for disc machine
acc. of const. work
on mirror $\frac{1}{2}$ Vol for
acc. or 20 sec
eg mirror with 2 components
or by certain discharge
needle or needle of
van. only & low
slow wave

Use  Chain for
Mirror Magnet
Suspension



Design 3 amp cell for
lead ion only to be worked
 $\frac{1}{2}$ amp $\frac{1}{2}$ day + discharging
rate - Metal Cells from
Hazardous materials

On boats with audions -

To Cancel Out Propeller wheel
in Receiving phone use a
wheel contoured properly
with phone mag to generate
a balancing wave
to neutralize the waves
from Receiving phone
also Bcc waves
Higher notes will not
leak as if they do a
phone cut off from
water could cause
balance

Expts

x also cut in Mirror
see if works



cut in front see if works



see if works

no idea
Substitute a transformer for
the wire

near transformer: use a loop
& 1 cell in key see if mirror
responds

cut out Electric Current
from side & use battery on
Magnet.

Storage of stuff between CuO & Zn
on a table - also a shelf
Storage

Put 180 lbs on 1 Aachon

Open & Close a small recept
near aachon 2 cells & key
if affects it - use direction bar

Get aachon: E & West

Put Paulin ^{blow} 90 7000 ft
or more ^{if} needle
& windy

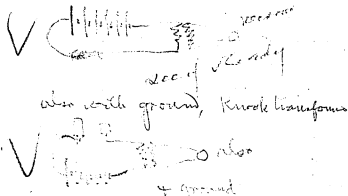
May 02 Wireless -
Thunder storm.

Put aachon in iron box
had closed

Get wireless coil & make Henry
wire

See if we have lead wire
think we want for a case
if not get some

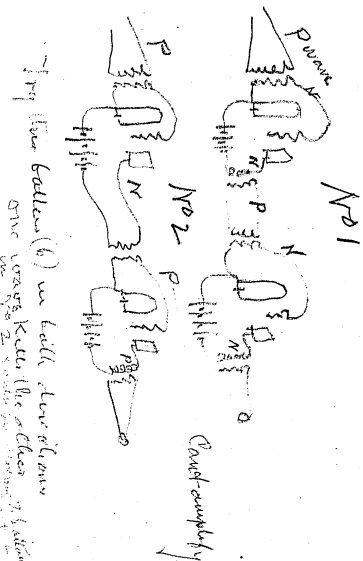
Open phonograph & get both
wires to stop wireless



Dynamic 2nd Commutator
 1/32 bars 1000 Rev Min
 3000 Sec - will get better
 Motor 2000 Rev - to replace battery
 198 Com bars

Lighting light system
 1 circuit

Or use 115 Volt AC
 Motor Motor of same kind



Explosive mines by low waves
 (Get other points of Mine...)
 5 to 60 fathom is depths

Relative strength accord.
 to distance of the...
 speed of 3 - goes as the cube

1	100%	
1 1/2	29.4	3:4 times weaker
2	12.5	8
3	6.4	15.6
3 1/2	3.7	27
4	2.3	43
4 1/2	1.6	62
5	1.1	99
5 1/2	.8	125
6	.463	215
8	.19	500

Conclusion...

Screw propeller 40 KW power
 Equals say a sphere 5 1/2 dia -
 gives out 510 Watts per foot -
 or 100 Watts in a 6" funnel

1000	ft gives in funnel	.000624 watts
5000	25 milliwatts	.0000249 "
10000	6 milliwatts	.0000624 "

If receives 1000 alms. then
 Rand Ralph say can
 detect ~~.000000000000000000~~ ^{Watts} .0000000016

His phone was per cent only
 100 alms - this would
 take .000.00016 - 16 millionths

R is the most insensitiv
 of 2 other experiments
 We amplify 27 times -

Mining (cell used) on Auction

4.66 amp hours Capacity

15 Mil amp on auction 24 hours
daily will last 13 days

48 KW screw gives to ocean at
distance of 5000 ft when collected
by a funnel 6" dia.

25 Millionths of a Watt

at 10000 ft. 6 millionths of watt

If the phone receiver
has an efficiency of 25%
+ this multiplied 25 times by
2 Auctions - it will give

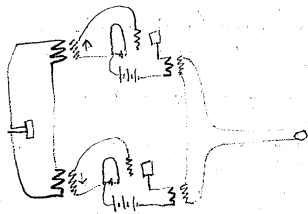
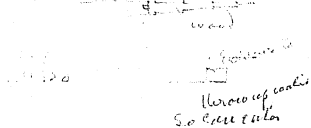
at 5000 ft 150 Millionths watt
at 10000 " 37.5 " "

Raleigh's determination of
sensitivity of telephone is
that it can detect 1/6 but

say 2 - ten millionths of a watt.
or 1/5th of a millionths of a watt

according to this at
 10,000 ft assuming
 minor corrections as
 telephones, we have
 capacity of detecting
 a current 187 times
 weaker, so if we get
 only 1% that passes to
 funnel we are ok

Low resistance per foot



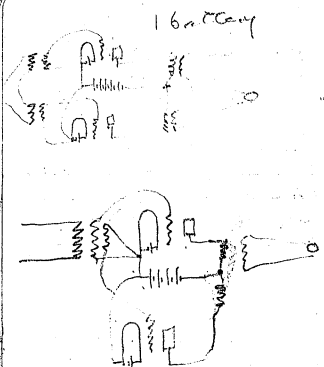
1 Inductor but both sides of
 the coils

2 Inductors nearly equal 3
 with 1 side coils only

2 Inductors 5 to 1 — $\frac{1}{2} = \frac{5}{25}$

2 Double Inductor 10 to 1 = 10
 $\frac{1}{2} = 100$

2 coils 4 times better
 with ground zero than 2 single
 coils



Both sides of core reaction
 Current

Best Varnish for
 Cores is Amber
 dissolved in Chloroform
 Hard Rubber should be varnished frequently
 India rubber like glass has a
 great tendency to attract moisture
 should be varnished frequently
 Hard don't readily collect
 moisture -

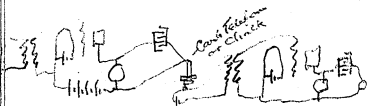
Because a Condenser was several
 minutes by the Cross leaks
 then discharge Condenser all
 at once than a split minute
 with
 very wet glass leakage than
 the India rubber sealant

Electrolytic Cap 1 ft. cap. Air
 .001 thick 0.032 thickness

Air 1 glass 1.9 resistance 2.8
 Room 1.77 glass 4.2
 shell 1.95 mica 5

possibly want of good success with
small chalk is due to surface being
altered for a moment. Try large diameter
Chalk like a 1/2" Manila phone

Think in our 6 Vt sec. induction arrangement,
want big choke coils like our Norway
also 100 mf condensers or more.
Each section -



or in 3rd section -

In Carbon telephone think less if used
under sea should be much differ-
as Arway Spring - also on account
of power in carbon leverage
could be increased the opposite way

for India Link for Carbon telephone try
Silica earth, Epichlorohydrin,
Tungstic rather Colloids -

For Carbon telephone buttons use glass die
silvered then paint with India ink -
or a bottom of metal then several glass
silvered doesn't form metal,
Can use 005 glass.
Could do it in vac if deposited silver
don't stick well -

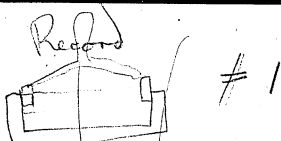
Metal metal for V + agate to prevent
rust, or both agate mounted in brass
for strength.

If Carbon bell used in sea
Use 2 depths the sea
depths - 1 another 1/32
from it to work the Carbon

Want earth signals 1st line
traverse - 1 mile minimum

Solve these 2
French hear 5 kilometers
a section when sea
quits but only 500 meters
when rough - boat stopped
walking when East running
English no better

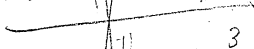
Obtaining wire men only need
few bullets & hand grenades
from 50 to 100 meters deep
2 1/2 meters apart, cheaply



Ring 1/2 wide fill, scrape off
press ring in & refill & press
off



This shape



Open Ridge

= 4

300 lbs & min



Set ring in & fasten to
 top plate 1/16" in - to make
 a hard edge. If possible
 do it on fallow, when
 both used make each
 1/32

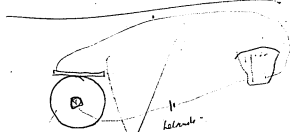
4 1/2 wood 2 1/2 chalk

1261 Schedule

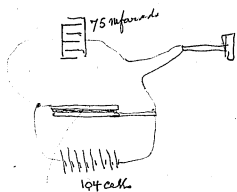
Bring right up to 600 lbs
 steam on for 6 minutes
 use water felt cooler

Old 1238 / 12.000 X XE

5 min Control - 3 minutes
 600 lbs - water & P.S.C.

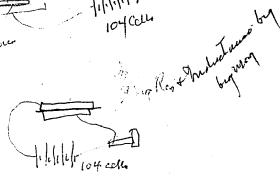
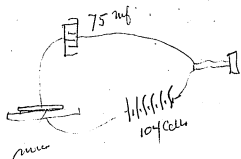


Chalk gas correct & takes the
 platform where use of changes
 much wet with R.H.
 Polarization shows

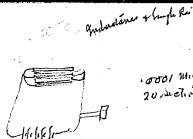


Mica Small Condenser
worked by Diaphanous

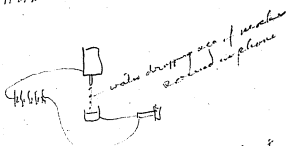
also Carbon instead of mica



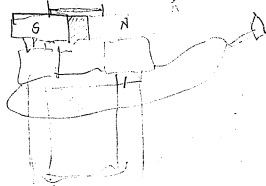
up also & Inductance by way

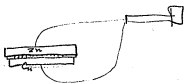


Galvanic & 44666
.5501 Mica Condenser
20 microfarads



Frankly Diaphanous
Diaphanous action of
the Mica Condenser
formed





papers just slightly dampened various solutions
 also other widely agitated by Daphnia of many
 signs with Milneup or plasma
 make acoustical series - use metal +
 dampening solution having great
 polarization -

~~Good improvements Disc techniques~~

- ~~1 = Edge without accessories~~
- ~~2 = Nickel Moulds~~
- ~~3 = Thinner blanks~~
- ~~4 = Little less Chalk - finer grinding~~

L

48 inches - 0013 movement of front
 for 1" movement of spot
 at $\frac{1}{16}$ - 00065 -
 $\frac{1}{16}$ practical -

Then Spot moving $\frac{1}{2}$ " 000325 -
 " " $\frac{1}{4}$ 000162
 " " $\frac{1}{8}$ 000081

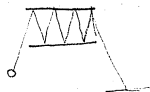
Supposing no resonance assistance

if $\frac{1}{16}$ 00004
 $\frac{1}{32}$ 00002
 $\frac{1}{64}$ 00001
 .015 000005
 .0075 0000025

probably later would build up
 by resonance

by several Mirrors can increase
 throw from 48" to 30 feet

Blum mirror



Multiple reflections to get
greater throw

Fix the small error I made

with 3 groups holes-

4 9 + 17 holes

or so we can send to air

4 9 + 17 waves per
second

Merchant ships

Anthracite in Zone & throws smoke
666 to 68, ~~quite~~ ~~ambiguously~~
10 miles or 90 astern

Side periscope

Small hand observing → special long
Night of vision

Arg beam, barium, observe reflection
by glass or spectroscopy

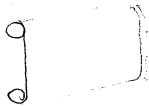
Sound ~~detectors~~

Get special ring inside so

Can use two rollers or
2 cables the thickness in
small press

Determined how to get air get
out three rollers paid. some
way showed to provided
~~detectors~~

morning picture of waves
 + depict one water in air to
 meetings of the lines + transmit the
 sea picture - perspective area + when
 big of film - some following words
 + what length pictures - 3 or 4 on
 end side of ship -



Both cloth several times
 to make it def. sky line
 Colors - changed several
 times daily

Bags + Cottonseed oil
 Hydraulic get last water
 out of line Benzene sulfon's

Various Cunard freighter
 full speed 61. 10 1/4 knots
 Speed 18.6"

Pitch 18.6 -

2950 HP. 2 indicated

Full throw picture
 on Cunard's full
 sunlight experiment

~~Liebowitz - Rump found
to locate 2 gramma
sub talking to
each other -~~

Old Canal boats
heavily loaded with
gravel stone etc
Gyroscopic steering
apparatus, Cowings
on Liebowitz at
night 15 miles out
& left them off

~~pale thinking bottom
explodes hole in +
sinks keel~~

~~Lieb, in morning ask for
Engineer go to Verbena +
see if Archimede wells~~

~~get in touch slow down and
go burning oil in zone
without disturbing
Rig form~~

Loaning Marichama to
Japs in exchange for
some coverings of freight
boats - little bit
big roman sleep

Wickowitz - ~~Range~~ ~~founded~~
for ~~workmen~~ ~~Queer~~
~~Spinning~~ ~~reels~~ ~~Talking~~
nights -

23° ~~Beaman~~ ^{Max} 140° ~~Beaman~~
like ~~stomach~~ ~~the~~ ~~American~~ ~~think~~
Cheap -

6 @ 10° ~~cut~~ -

facebook over grate facing through
ceiling in case of ~~collapse~~ ~~of~~ ~~and~~
over ~~top~~ ~~rock~~

faced 5/8" ~~Easy~~ -

Hammell ~~Ref~~ ~~Co~~ ^{ny} ~~St~~
Hammell ~~Beam~~ ~~Co~~
- ~~Facet~~ ~~Mfg~~ ~~Co~~ ~~ny~~ ^{ny} ~~St~~

Dahl - at Chicago, ~~W~~ ~~Central~~

Sandy Hook ~~NY~~ ~~Central~~
Coals

Monmouth 9' 3"

Rev 155

Sandy Hook 9' 8"

Max Rev 145

Cut off ~~heads~~ in 2 minutes
18" dia 5/8" thick -

Can cut stacks quicker
than take out rivets -

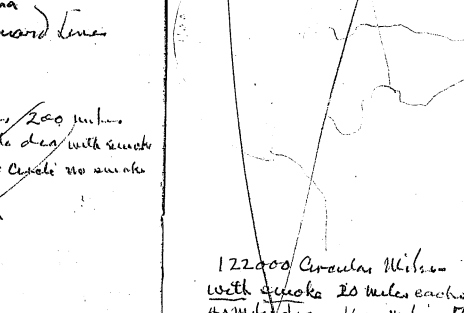
Portable ~~Can~~ go on ships
no ~~dump~~ -

Capt Palfrey Dept.
Cunard Dockie -

2nd Eng. T R Stuart
55 Palma

Kuacos a lot, Cunard time

Roughly 25 Subs, 200 miles
from Scilly 30 mile dia with smoke
350 Subs and 8 mile Circle no smoke
if smoke, smoke 700



12200 Circular Miles -
with smoke 20 miles each side -
40 mile dia - 1600 miles. 7/6 Submarine
Without smoke - 6 miles each side
12 miles diameter, 144 mile area
847 Submarine

submerged ship signal
flag on
top
of
island

Canvas along side ship 5
tents & standard tents to increase
for good weather
22' high 400 ft long
7 1/2 yds wide - both sides -
7500 yards 400 yards
3rd - painted ball
leads from tent
with tent poles reached by
the sea - can tell which
to use

Zeebrugge - special channel
7/10th mile long 1/10 wide 500 ft
General Entrance 2.1 miles 25 ft deep
Helsingborg General Entrance
2.8 miles 40 @ 70 deep

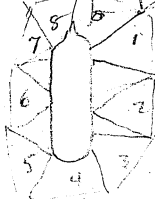
~~Nonleakoffs~~
10 am ~~Thursday~~
All

Charles & H Beers -
Sub Marine Defense Assoc
141 Buckley Telephone
Residence Murray Hill
3611 - office Hanover
4642

Max Toch
Toch Bros
320 5 ave

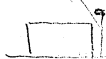
Painting Ships my

Make Binoculars 36" long
1 1/2" clear - space
Spiral 1/8" high 1/2" apart
Wood block + good glass
Eye piece & wear
The glasses when not
using - find them -



8 zones
to sweep
max to
each -

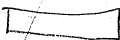
Try this -



Try the effect
of water

Regulate the machine to get
the tent on ship.

Diamonds - make
hollow



Blank @ powder & try
dolls go back to
conditions & have
yield of 95% & try

Seebman

Sulphur in Silhouette
using thick Spectroscope
slit, if telescope is on
Kongin close slit

Batches of powder
substitute Residues
ditto Chemistry
Fullon Truck

Curvature of the Earth

	inches	feet
3000 ft	.57	.21
6000	1.14	.85
9000	1.71	1.41
12000	2.28	3.42
15000	2.85	5.32
18000	3.42	7.66
21000	3.99	10.42
24000	4.56	13.62
27000	5.13	17.24
30000	5.57	21.27

$$\text{Height} = \frac{(\text{Distance})^2}{42,240,000}$$

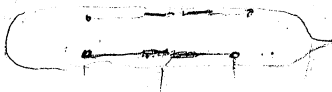
Ex.

$$H = \frac{3000 \times 3000}{42,240,000} = \frac{900}{42,240}$$

$$\frac{4224}{8448} \times 900 = 421$$

$$\frac{5520}{4224} = .21 \text{ feet.}$$

400ft 15 deep 1/8 -
40 Tons



probably 5 beams on side (width)
Soft iron blocks.

Model built.

also consider moving 1 crane

along axis of ship

also



Show out.

(25)

Motor sailing launch
40 to 50 ft.

Torpedos from ~~former~~
subs act at 12 ft.

Warn Palfray
tell Engineer
Keep Goggles light
& stop padding
Search for hides
BP oil

Find from Clarke about O'Brien
projectile size, weight, exact drawing
of Case 4-Shell etc for case
1.44 projectile to try experiment
also notes of submarine — also
Crash in example of submarine

Jerry to take 3 telescopes,
1 ~~also~~ also ~~also~~ desirable
barrel if can get it,


~~\$20 to Richard Expense
money~~

3" gun 10 tons per acre in
d 4" gun 12 tons #

60 lbs wood
40 Chalk
12 Prussian -
50 lbs alcohol
2 Lamp glass

~~Capt Charles of Liverpool & Valencia
said Periscope can't be seen
for much more than 1000 yards
& sea can come to surface. For
4 miles ahead of ship then completely
retrograde & by dead reckoning
know just where to here's launch
to find it without showing her
Periscope / friendship don't
change her course.~~

Disc

1 = Draw a small experimental
mixer  2 6 ft long
with spindles & plow - find
old mixer drawing - find it.

2 = Make blank low in center

3 " " high in center
by using the rubber -
if high make it so edge will
just about print & not crush
7" w/ 1/2 the area

4 = Dolly - dissolve Rosin
hot in cheap oils Straw,
Salvint Naphla, Kerosene,
If don't work in mixer try
Mortar & pestle. Put Naps &
Keruing, other cheap liquids
when OK for a blank they
make blank - try Naps also

5 = Solvent Naphtha & coral tar
pitch hard, they mix & cure fast

6 = If can use Karosene & Rosin cost 2.2
If lose all alcohol 5.7
If lose $\frac{1}{2}$ the alcohol 3.67
If use Solvent Naphtha & Gall. Res. 2.4
Rosin & Solvent Naphtha 3.5

7 = Benzaldehyde by Gallon of cork

8 = Meller, ~~make~~ ~~disrupt~~
on Regula ~~is~~ -

9 = ~~1~~ ~~rod~~ ~~th.~~ Try Solvent Nap.
& ~~1~~ ~~rod~~ ~~th.~~ ~~black~~ with Rosin
in small Chandler's Mill -
at ~~London~~

10 Set up differential Recker
Rolls in # 4 bldg with Motor

11 = ~~if~~ ~~fine~~ ~~grinding~~ requires
more Rosin - ~~1~~ ~~rod~~ ~~th.~~ ~~black~~
made with 15 Rosin -

12 = Batch in which ~~China~~
Clay ~~replaces~~ Chalk -

13 Batch in which ~~fillers~~
Earth ~~replaces~~ Chalk -

14 - Emulsion of Rosin in, Karosene -
+ ~~mix~~ ~~direct~~,

15 = ~~By~~ ~~staying~~ ~~the~~ ~~kind~~ ~~of~~
Mixer at Glen Ridge -

16 - $\frac{1}{2}$ ~~close~~ ~~Rosin~~ - ~~grind~~ +
~~1~~ ~~rod~~ ~~th.~~ ~~black~~ $\frac{1}{2}$ - ~~dry~~ +
Rosin -

17 = ground Rosin & Chalk sieved
preparation to paper in tubs
then add Wood - no solvent

18 = fine powder bottom scrape
Then in ground powder screen
Some to get small out,
Scrape - finish with fine
powder - 2 loads -
Special -

19 = Pulling in Rosin in Coarse
powder & then grinding in
Wring in penicillin should
~~the~~ ground wood & screen
then mix chalk & Rosin
Use without screening

20 = press at 1000 Cold
then put heat on
then cool & use the
1000

21 = Pack some mould
entirely too much in
Middle 7" also opposite
also more on one side
than the other to see
what courses center
Cracks across & bank

Hold banks till little
Colder till Rosin is hard
Cracks may be due to
want of adhesion of rosin
& springs up a crack -
also very cold when
pressing -

22 =
Bally
Reg powder ready to
load, mix $\frac{1}{2}$ of what
originally in dry

24 - Re wet rec'd powder &
Re dry 1 deg/ hr to
mix the powder cells
25 - Edge more carefully feed in instead
out

Solvent Nap BP 135 to 160
or 284 Fahn to 320 Fahn
find out BP Fahn in
27 to 28 inch vacuum

Our solvent Naphtn BP
280° Fahn 13% 8 Cent,
in 2.7 inch vac
all come over at
170° Fahn with a vacuum
Recall — This is low BP
Solvent Nap

Write Harpers man in way
that publication fields of
Mistatonski +
tell Wilson to see
Moving Picture work
+ fix it up

See how they show
powder blank mould
in press if knocked on
pins board

$\frac{1}{8}$ " sheet iron both sides 5000 tons
 300 ft diameter rollers
 Plates 51000
 40 trams 2 ft dia 14 ft long 4000
 Castings 2000
 250 ft chain 6000
 Add 5% waste 315
67000

33 $\frac{1}{2}$ tons
 @ 150. ton \$5000,

Conical Dry Box
 takes 1 $\frac{1}{2}$ hours after boat
 is allowed to pump dry -
 12 $\frac{1}{2}$ c per gross ton for handling
 it out,
 10c (ton gross) for each day
 in dock
 \$2040, for gross tons

Only reason to suit ship
 to a 24 ft 16 $\frac{1}{2}$ inch iron
 or 12 ft eye grass iron
 When available every ship
 is self-sufficient

Orange - J. Simpson
 Tel 5333J -
 5333J

Running 600,550,500 lbs
 " With square edge
 " Sharp Edged blank
 and 3 mounted with steam
 on 100 lb then 3 men 600 lbs,

If 30 boats per week sunk

Saved by Surber 10% 3

Camouflage skydiver paint 7.5

4 no paint 25% 3

Smoke & kalls. 10

Plate per motor 25% $\frac{7.5}{21-0}$

21 boats saved

After Edging blanks annual
in a row 150 for 2 hours
may take 600 lbs a cut row &
notice 600 lbs come in
when there are no 600 lbs

Found out what kind of
boat is Belgium Prince
Sunk by 2000 lbs in
Sun along 4

Prutsche dulo

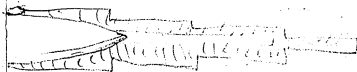
Load press

Bring in contact

But steam all let it run

up to 200° Fah then

put on 600 lbs pressure
for 12 minutes, Coal



Natoma 120 → 3 Cabins

17.6 - 6 ft draft

Wolow yacht,

3 Cabins 1 6 in
on top - OK good
cruise tank

~~Helena~~
~~Leptor~~
~~Leptor~~ = Steam

17 - 6.5 draft

Good, will build

Small house

ready in 1922

Dachern 192. SB

Torpedo 3100 ft min 48 ft second

Morchaire 1050 ft min 17.4 sec

liquid CO₂ in cylinders w
pieces of oil for wear ships

Report to Shimizu

8000 yards beam torpedo
boat w/ ~~ice~~ water
brake -

Water brake to stop ship
in 1 1/2 @ 2 lengths
after hearing torpedo
attack track of mine

6415

Experiment with launch with
Water brakes, see if any
regulation in the water
brakes.

Atlantic Rowland
Tamersville N.Y.

Merchant ship
Stop Eng & Reverse

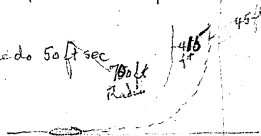
1 min
To bring ship to rest
from full speed ahead
Stop Eng & reverse
3 min 14700 ft.
to turn to 90° 1 1/2 min
180° time 3 min

T Ashley Sparks
Capt Lincoln Lane
24 State St NY

Playberg man to make smoke
shell for our 1 1/2" gun

Torpedo 50 ft sec

Ball
Radius



Present middle turns 90°
in 1 1/2 min 1070 radius
with bow middle 700 ft radius
Torpedo 1000 yards

Present Tucker 150 safe
bow middle 200 ft

Remitt 4 shots fired at target 6x6
7/64 sheet steel

#1 - went 7 ft thru water, went thru steel $\frac{1}{16}$

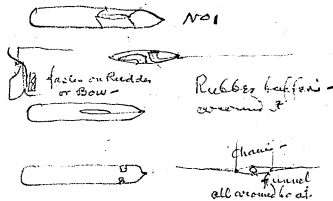
#2 went 79 ft " penetrated 7/64 plate +
dented 2nd 7/64 plate

#3 went thru 100 ft water penetrated
7/64 steel + also 1/16 " sheet iron
all above shots fired with 70% of
service charge velocity on striking
about 1500 ft seaward

#4 tried with full service charge
did not hit target, not checked,

End piece had 8 lugs projecting 90°
into bore

projectile in #2 & 3 shot hit water
10-12000 50 or 100 ft front of
target weight of arrow .553 lb
1/2" dia on 10 lb arrow would penetrate
5/8" steel

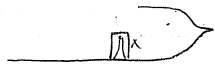


Possibly can put a rubber dam
outside pump air out + cut hole
in vessel + feet in tank.

fox launch up if it draws
enough water + put in funnel
launch probably makes
lots of noise -

Have an imitation whistle made
to be used in testing the men
listening they giving a bell
signal

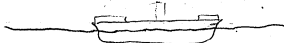
(145)



perhaps X being felt under a
pressure of some depth that the
high water will pass from the steel
into water unimpaired in strength
& hole may not be necessary
Can secure box to side by top bolts

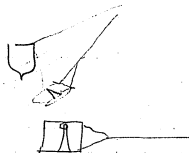
Watch about Chlorine in Sub along
Coast (deep 15 - find out about it)

Kennedy to close end his
funnel with a steel plate see
if makes a difference or do
another funnel so can bolt on
this plate same size funnel
he now has -

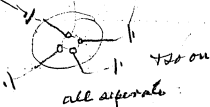
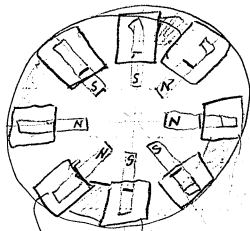


↓ Tow it 40 @ 60 ft below - very
smooth armor'd cable & Vane
to keep it down - possibly rope
with lead

or



Wedge shape.



Moore Mountain Res 82 Chem

Launch 16 ft - 6 miles hour

50 ft with matches

with Kites under

20 ft

Ensign Geo. L. Catlin
Room 3735

120 Broadway
Stephen Rector 6020

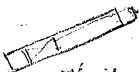
3 pm Congressional
limited - Park please
go to junction -
~~Sunday pm~~
~~Walter Baker~~

400 yards near torpedoes when
detonated
1000 yards near in 1 sec
~~2000~~ 2000 yards near in less
than 10 seconds after detonating

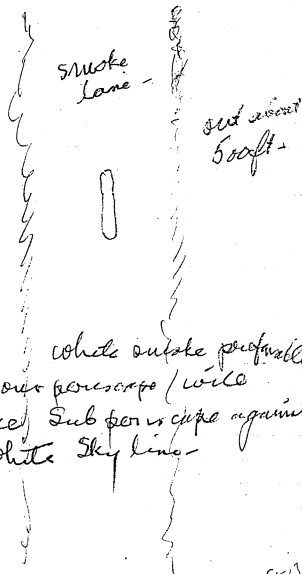
See President of pure secondary
Daniels -

Ask Daniels for 3" gun
Naval or Army worn +
about Baker

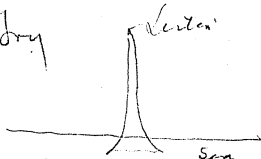
we
 want 1000 ft 2 conductor
 Lead covered armored
 telephone cable
 made by Safety
 Insulated Wire Co NY
 made for Navy Dept



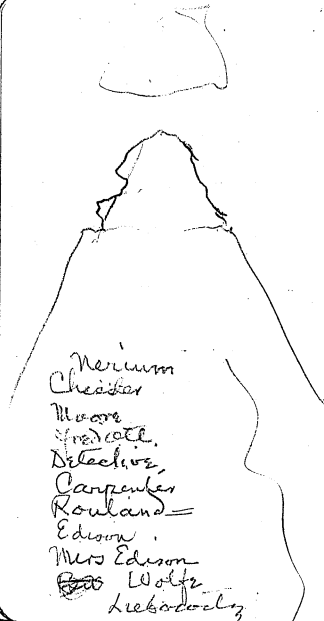
Think 1/2 hydraulic
 Shelby tubing shoot
 out a smoke pot small
 size 1000 ft ahead
 last 10 minute act
 ltr smoke - shoot in
 advance of ship



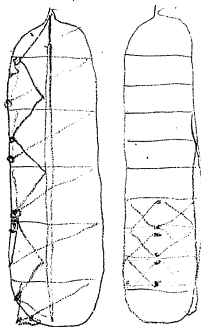
Joy

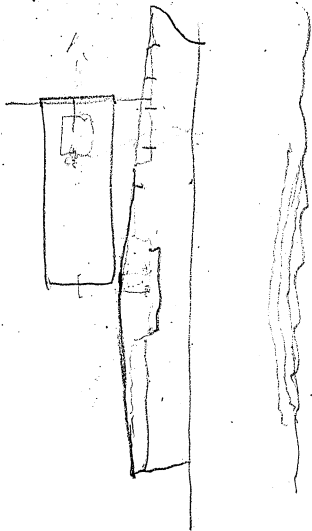


1 ft under



Meriam
Chester
Moore
Fradette
Delachy
Carpenter
Rouland
Edison
Mrs Edison
~~Wolfe~~ Wolfe
Lebidooly





1000-

250.
60

2000-

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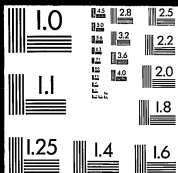
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